



International competition and upgrading: a study of the textile and apparel sectors

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Bibliographical note

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Abstract

Recent studies on competitiveness have shown how essential it is to invest in innovation and to raise value in a context of rising globalization. Two main competitive strategies are usually considered, although some mixed approaches can also be undertaken: technological/innovation-led competitiveness and cost/price competitiveness.

In this study, an analysis is made of the competitiveness trends in two very important sectors in global international trade: textiles and apparel. They are usually seen as medium-low technology sectors, being present in both developed and developing countries.

Although several studies have approached the subject, to our knowledge the comparative analysis of the major exporters as a whole has not yet been made. It is the purpose of this work to go beyond the mere description of single countries' experiences, offering a broad picture of trade competition and of its consequences at the world level, following the Multi-Fibre Agreement extinction. An investigation is made of countries' competitiveness strategies and their changes under the new economic setting, based on the on the computation of upgrading indicators and market shares during the past decade and a half.

Key-words: Competitiveness; Globalization; Economic upgrading; Textiles and apparel.

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Abbreviations

BRIC	Brazil, Russia, India and China
CHELEM	International Trade Database
Comtrade	United Nations Commodity Trade Statistics Database
EU	European Union
GDP	Gross Domestic Product
GVC	Global Value Chain
HS	Harmonised system
IMF	International Monetary Fund
R&D	Research and Development
SPSS	Statistical Package for the Social Sciences
Taiwan PRC	Taiwan People's Republic of China
UK	United Kingdom
US <i>or</i> USA	United States of America

1. Introduction

Recent literature has emphasised the need to innovate and create value in a world of increasing globalization (Aiginger, 2013). The emergence of BRIC's and other less developed economies in the global market created strong competitive pressures, as they have both lower absolute and unit labour costs when comparing to more developed economies. In order to survive, these latter countries must 'stand out from the crowd' reinforcing quality-based competitive advantage and supporting innovation and R&D (Aiginger, 2013). Such an understanding is essentially backed by the idea that there are two main strategies to become competitive: technological (innovation-led) competitiveness and cost (or price) competitiveness (Bogliacino and Pianta, 2010). Firms do not compete on the same terms; rather, competition is getting each time more aggressive and survival strategies must be carefully planned. Moreover, the concept of competitiveness is becoming increasingly related to social sustainability: in order to become competitive, a country must raise living standards and employment conditions and at the same time reassure sustainable environment and external accounts (Janger *et al*, 2011).

In this study we focus on two traditional exporting activities: textiles and apparel. These industries have been important sources of growth in several recently industrialized countries such as India, China, Bangladesh, and Turkey (Bernhardt and Milberg, 2012), while remaining significant export sectors in a number of developed economies. Within the top fifteen world exporters, nine are developing economies, mostly located in the Asian continent. Until now, no African country has established itself as a major exporter in either the textiles or apparel industries. With regard to developed nations, ten Member States of the EU are included in the top 20 exporters: Italy, Germany, Belgium, France, UK, Spain, Poland, Netherlands, Denmark and Portugal (the 19th biggest world exporter in 2014).¹

With regard to imports, the US are the main importer (around 18% of worldwide imports) followed by Germany. The top 20 importers include also the UK, France, Italy, Spain, Netherlands, Belgium, Poland, Austria, and Switzerland. European countries are

¹ WITS Trade Data – 2014, available online at <http://wits.worldbank.org/product-analysis-visualization.html>.

thus important players in textile and clothing trade. In 2014, textile and apparel stood in the top 10 of exports in Europe and Central Asia and in the top 8 of imports.

The analysis of textiles and apparel is particularly worthy of attention, given the changes that have taken place in trade policy. In the last two decades there has been a spread of liberalization following the extinction of the Multi-Fibre Agreement which ruled international trade in both sectors until 1995. Rules that worked as barriers to trade were progressively eliminated and competition became the new order. This meant a huge increase in competition, making more urgent the need to rely on competitiveness factors other than price (Arora, 2015).

The main motivation behind this study is thus related to the importance of this topic in a context marked by increasing globalization and fierce competition of less developed economies. Textile and apparel are important items in global exports, in both developed and developing countries. Being included in the ‘traditional’ industries categorization, the technology of production is accessible to most economies. Theoretically grounded on the debate on the sources of competitiveness, an examination of recent trends in these industries is undertaken, taking into account the evolution of the major world exporters during the last fifteen years. The identification of the strategies pursued by the different players is based on the computation of upgrading and innovation indicators, such as unit values and market shares.

Although several studies have analysed textiles and apparel (e.g., Arora, 2015; Gierańczyk and Rachwał, 2012), most of them focused on individual countries’ experiences and, as such, the “big picture” of how globalization and the Multi-Fibre Agreement extinction have affected competition and competitiveness strategies worldwide has been necessarily overlooked. Moreover, to our knowledge, the available studies on the matter cover essentially the pre-crisis period (e.g., Jin, 2004; Yoruk, 2004; Stengg, 2001; Gereffi 1999) and thus an analysis of the more recent period has not yet been made.

The dissertation is structured as follows. In Chapter 2 a survey of the links between globalization and competitiveness is provided, reviewing the theories that frame the empirical work. An analysis is also made of the literature on industrial upgrading, which puts forward the notions of economic and social upgrading and their main indicators.

This chapter also provides an explanation of the methodology that is used, along with an identification of its strengths and limitations. Chapter 3 presents the empirical assessment of the trends in textiles and apparel and of the trajectories adopted by its main exporters during the last fifteen years. The last and fourth section concludes, providing a synthesis and a broad interpretation of results, along with an indication of future research avenues.

2. Globalization, competitiveness and upgrading: a literature review

2.1 Globalization and its effects

There is a broad controversy involving globalization, its definition and social consequences. Globalization has become a popular word, but one which is often used with several different meanings, with no widely accepted interpretation (Ricks, 2003).

Dictionaries tend to define it as a trend or an act of making something *global* in terms of range and application, which is to some extent tautological. The IMF defines it as “the growing interdependence of countries worldwide through the increasing volume and variety of cross-border transactions in goods and services and of international capital flows, and also through the more rapid and widespread diffusion of technology” (*cit. in* Ricks, 2003: 355). Other authors, such as Daniels *et al* (2002), perceive globalization as a deepening of relationships and enlargement of the interdependence among people from distinct countries.

Globalization has a multidimensional character as it takes into account many features, within and outside the economic scope. In essentially economic terms, it is usually related to the concept of market integration, including goods, labour, capital and technology flows, although traditionally the emphasis was put on trade (Lains and Silva, 2015). Even in this narrower view there are some problems, since no universally accepted measure of market integration exists. Common metrics use data on quantity (size of international flows of commodities and factors) and prices, but they all hold some caveats. It is thus necessary to use complementary indicators in order to reduce weaknesses and have a more clear view of market integration (Ricks, 2003; Lains and Silva, 2015).

Contrary to the popular view, globalization hasn't always been increasing. When the World War I stroke it receded and it took a few decades to restore pre-war market flows. Only in the 1950s the international flows of goods, capital, and migration were re-established, following the end of World War II and the Bretton Woods agreements. Nowadays the world economy is in a better situation concerning average income and wealth. As globalization has enabled trade expansion, specialization and division of

labour, most economists agree that it has acted as an important source of structural change and efficiency increase (Daniels *et al.*, 2002).

This notwithstanding, there have been always critics of international business. It has been blamed for making nations more vulnerable to manipulations or threats from the outside, for reducing national authority levels, homogenizing cultural values, inhibiting economic development, determining a “wrong” pattern of specialization or stimulating corruption (Ricks, 2003). The effects of globalization have been dividing opinions and favourable and unfavourable views on the matter have long coexisted (Romer, 2010; Lains and Silva, 2015).

Industrialization was the main responsible for the globalization’s spread, as until around the 1820s the rates of economic growth and technological progress were very low. This situation has gradually changed thanks to the continuing industrialization of countries and to the transition to ‘modern’ economic growth (Maddison, 2001). The shift to rapid economic growth occurred at different periods in time around the world, however. In Western Europe (except for Portugal, Spain and other Western offshoots) the transition took place in the nineteenth century; Latin America and Asia had to wait for the second half of the twentieth century and most African countries are still waiting for the opportunity to come.

Globalization is also typically taken as the culprit of rising world inequality. Bourguignon and Morrison (2002) show that it has increased exponentially from 1820 to 1914, entering a period of stability until 1950 when signals of recovery started to appear. According to the authors, the rise of general inequality is a result of the gap in per capita income among nations. When analysing the inequality within-countries, they conclude that it has fallen prominently until the 1950s, when it has finally stabilized. Simultaneously, the world’s economy has become more and more integrated.

Despite of the coincidence between greater integration of world markets and the increase in inequality, growth theorists tend to emphasize internal factors, such as the capability to produce and embrace know-how and the quality of institutions as the main factors explaining these trends, rather than globalization (Romer, 2010; Grossman and Helpman, 1991). Nevertheless, globalization forces may have played a role, by

influencing internal factors, and thus different growth performances may be the result of external events as well.

It is undeniable that globalization has deeply changed international competition as it has connected and impacted economies by influencing workers' welfare all around the world. Kaplinsky and Readman (2005) also point out that this phenomenon has led to rising discrepancies not only between countries but also within them, exposing developed economies' weaknesses. On the positive side, McMillan and Rodrik (2011) emphasise that globalization has simplified considerably the transfer of technology and has thus enabled increases in production efficiency. However, they also state that the consequences of this worldwide known phenomenon differ among developing countries, i.e., the outcomes are influenced by the manner by which countries participate in the global economy.

Taking the risk of oversimplification, one may say that two strong perspectives concerning globalization exist. While some argue that it has acted against broad forces of divergence, others blame globalization for being the main reason of increasing inequality. Globalization enthusiasts emphasize the freer trade forces that allow the reduction of incomes discrepancies amongst participating countries, by stimulating the transfer of capital and knowledge. Supporters also enhance that protectionist policies after war did not stimulate equality (actually the reverse), whereas the second half of the 20th century was characterized by a mitigation of inter-country inequality. Following this line of thought, the divergence amid participating countries has been faded by the integration of goods and factors markets (Lains and Silva, 2015).

On the other hand, globalization sceptics strike back by saying that countries' structural change and economic development can be postponed when trade is made between nations with severe technological and endowments' disparities. Industrialized countries' gains are directed to increases in human capital, while non-industrial ones may be reflected in demographic increases and specialization patterns based on raw commodities (Galor and Mountford, 2006). Following this line of thought, poor countries may be hurt by globalization, because in some cases it can lead to deindustrialization, whereas richer economies benefit from virtuous structural change, technological development and capital accumulation (Lains and Silva, 2015). Less-

developed economies may experience some difficulties in absorbing knowledge and technology, but some authors are optimistic on their capabilities of overcoming these barriers, running alongside with wealthier nations in a (not too far) future. Lucas (2000) has a very optimistic view concerning the economic convergence process that had already been foreseen by neoclassical theorists, considering that this process will be completed along the 21st century, as countries will be collecting trade benefits by adopting effective and market-based institutions, absorbing capital and technological inflows. China and the Asian tigers are usually seen as main examples of such a successful transition.

Overall, globalization's expectations of increasing welfare seem to have been materialized, with increases in productivity and in the pace of structural change resulting in global growth. But there are some cases (e.g., some Latin American and Sub-Saharan African countries) where the effects differed from what was expected. In these economies, the process of structural change made labour and capital move to less productive activities. It can thus be stated that the effects from globalization strongly depend on the local circumstances, the quality of institutions and domestic choices concerning policy and growth strategies (McMillan and Rodrik, 2011).

In sum, globalization has intensified the international exchange of goods, capital, labour and knowledge bringing the world closer and forming a worldwide economy. This is the result of a sophisticated historical process that spread unequally among countries over the last centuries and which had different impacts on participating economies, depending on their endowments and on the overall quality of their institutions.

2.2 Competitiveness conceptualization and its evolution over time

Competitiveness is a relative, rather than an absolute concept. In Feurer and Chaharbaghi's words (1994: 58) "It depends on shareholder and customer values, financial strength which determines the ability to act and react within the competitive environment and the potential of people and technology in implementing the necessary strategic changes. Competitiveness can only be sustained if an appropriate balance is maintained between these factors which can be of a conflicting nature." The authors also state that competitiveness can be measured through a mapping process. The

competitive position map shows the compromise among satisfying customers, shareholder values and financial strength. When the organization's competitive environment is mapped, one can establish competitive flows and define the business strategy.

The concept of competitiveness has been evolving over time and new definitions based on the envisioned 'new growth road', taken as the capability of a country to sustain welfare have been proposed (Aiginger, 2006; Aiginger *et al*, 2013). The modern approach to competitiveness thus covers social, quality and ecological issues, challenging the (short-run) focus on low costs, external balances and market shares. It also evidences the typical dichotomy regarding competitiveness strategies: innovation/technology led and cost/price led competitiveness. While the first strategy is based on the development of new products and new markets, the second one relies mostly on labour saving process innovations or in the reduction of factor costs (Bogliacino and Pianta, 2010). A narrow interpretation of the cost led strategy sees cost reduction as the only way to increase competitiveness.² There have been some criticisms on the overemphasis on wages as they are no longer considered the most important cost component, as energy prices and taxes must also be taken into account. Additionally, Aiginger *et al* (2013) assert that absolute costs play no role in determining firms' survival; rather, they have to be seen in association with productivity gains. In other words, the capacity of an industry to sell in the international market is not restricted by cost, when productivity is high. Profit margins are expected to be positive, when productivity lead (plus price advantage) of a firm or region is high. The concept of unit labour costs derives from this argument. Basically, the concept of cost competitiveness involves both costs and productivity considerations and goes beyond labour costs, comprising capital, energy and fiscal policy as well (e.g., labour, capital and other resources productivities and government efficiency).

The second competitiveness strategy, known as innovation or technology-led, is more elaborated. It is more than just an accounting result relating costs and revenues. It takes into account various competitiveness sources and their future projections by scanning the processes that lead to a favourable and sustainable market position. In this way,

² The focus on cost derives from the original concept of competitiveness at the firm and country levels, present in classical and neoclassical trade theories. See Bogliacino and Pianta (2010) for a survey.

competitiveness is related to processes and abilities. This new interpretation can be described as "quality competitiveness" or "technological competitiveness". The modules investigated under this wider notion of competitiveness are the *structure* of an economy, and its *capabilities* (Aiginger *et al*, 2013).

Figure 1 summarizes the concept of competitiveness in the light of the traditional and new perspectives discussed above. Each circumference is related to a specific type of competitiveness. The first one regards *price competitiveness* which covers costs (labour, capital, resources and taxes), productivity, unit labour costs and also wage shares. The second one is associated to *quality competitiveness* that includes structural aspects, such as exports, value added, price segment and quality as the dominant mode, but also several capabilities related to innovation, education, the social system, ecological ambition, the functioning of institutions and clusters. The third and last circumference is related to the *outcome competitiveness*, which is divided between the traditional and new perspectives. The traditional one regards GDP per capita and employment and the new ones go beyond these goals, covering income, social and ecological pillars, life expectation, happiness and work-life balance. As one moves from left to right, the perspective changes from an *input-oriented* to an *outcome-oriented* assessment of competitiveness.

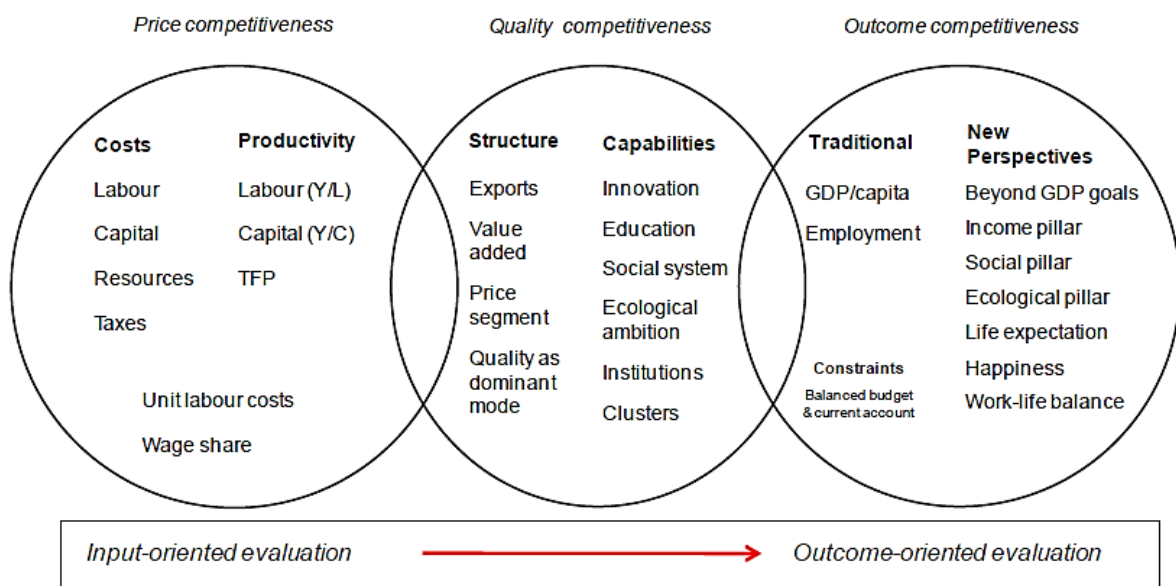


Figure 1: The multidimensional nature of competitiveness

Source: Aiginger *et al* (2013 :5)

A few examples may help clarifying the different ways by which countries can compete. In developing economies, such as China, the clothing manufacturing relies fundamentally on the use of cheap labour and land. In order to fulfil its requirements, China's clothing industry has been progressively relocating production towards least developed countries, as Cambodia, Bangladesh and Myanmar, so that it can lower costs and benefit from preferential trade access (Zhang *et al.*, 2014). On the other hand, developed economies cannot compete on these terms, so they adopt a different strategy. These economies must stand out by the quality of their products and in this way they invest in R&D, technology and innovation. In 2008, Poland has invested almost 90% of capital in machinery and equipment, in order to sustain innovation in the sector (Gierańczyk and Rachwał, 2012). The differences and priorities between the two types of economies are evident.

Delgado *et al.* (2012) propose a new concept of competitiveness directly related to prosperity and which can be affected by policy action. They describe foundational competitiveness “as the expected level of output per working-age individual given the overall quality of a country as a place to do business” and admit that overall prosperity is influenced by both employed workers productivity and the capacity to hire a high segment of the existing labour force. There is a huge variation in labour productivity across countries, often associated with GDP per capita differences. However the variation in labour participation is also high. The ratio of the working-age population over total population enables to differentiate between demographic and competitiveness conditions. The authors' definition of competitiveness thus widens the view of productivity set in previous works, and incorporates the complete range of productivity-enhancing factors which enable policy action responsible for shaping prosperity (Delgado *et al.* 2012).

Until this point we have been discussing types of competitiveness. However, it is also relevant to consider the distinct levels at which competitiveness can be assessed, which are often divided in two categories: macro and micro. Delgado *et al.* (2012) present a complete framework of the drivers of the expected output per worker, which takes into account both categories. Macroeconomic factors are related to the working of institutions, policies, and public good investments responsible for determining the *context* of the economy. Social infrastructure and political institutions affect the context

in which economic activity takes place, thus influencing productivity. In order to stimulate it, social infrastructure features, such as public safety, health care and education must be guaranteed. Delgado *et al* (2012) set various scenarios to explain this idea. If, for instance, a substantial part of the population is undereducated, their participation in the economy will be extremely limited. If the systematic incidence of epidemics makes a great part of the population worried about their basic health, productivity will also be affected. In a similar way, war and civil unrest inevitably conditions production, as the population is unrested and crime rates increase. Monetary and fiscal policies also have an important impact on economic activity in the short-term.

Regarding microeconomic factors, Delgado *et al* (2012) take into account physical infrastructure and several quality and quantity effects. The list includes capable access to capital that enables long-term investments; labour force in quantity and quality with higher and managerial education; it is also influenced by the administrative practices' quality: for example starting business at low costs. These factors influence directly firms' productivity and workers' motivation.

Firm productivity is also inherently related to various incentives and rules governing local competition. The higher the competition, the higher the performance. Competition dynamics influences new firms' entry, the exit of underperforming firms and thus overall performance patterns. International competition allows a country to enhance domestic productivity, by enabling the access to advanced technology and know-how and by exposing companies to competitive pressure (Delgado *et al*, 2012)

Snieska (2008) mentions another microeconomic factor – the “competitiveness management information system maintenance”, which includes blocks as “product line description, market segments characteristics description, market competition intensity level and product demand life cycle stage” (Snieska, 2008: 30). According to this author, competition can be seen both as a process and an equivalent structure of market powers, with economic reality being a mix of both models. He also relates microeconomic performance with the regional environment. In his view, in order to sustain regional competitiveness, a cluster based economy should be promoted, seeing clusters as a “geographic concentration of competitive firms or establishments in the same industry that either have close buy sell relationships with other industries in the

region, use common technologies or share a specialised labour pool that provides firms with a competitive advantage over the same industry in other places” (Snieška, 2008: 30). A similar understanding is put forward by Delgado *et al* (2014), who see the geographical concentration of related activities as a key factor to understand economic geography. The authors (2014:1787) identify three drivers for the agglomeration process, namely “input-output linkages, labour market pooling, and knowledge spillovers”. Each driver has its own specific cost or productivity advantages to firms that can lead to growing returns to the cluster.

Another aspect that influences competitiveness at both macro and microeconomic levels is the competitive market demand forecasting. This is a concept not yet fully incorporated in the literature, taken as the “prediction of tendencies to change the future status of economic object” (Pilinkienė, 2008:25). There are four main premises of forecasting development. The first states that it is assessed from the position of the process; the second establishes the economic index as the object; the third identifies forecasting as a coexisting part of all economic activities; and finally the fourth says forecasting tools and aims are identified (Pilinkienė, 2008).

Snieška (2008) argues that quantitative forecasting methods have been well accepted, whereas qualitative forecasting tends to be neglected. In this regard, some authors believe that quantitative methods are proprietary and the qualitative ones should be used as a complement. Others defend an equal and balanced use of both quantitative and qualitative forecasting to ensure its consistency and information of value. The basic structure of this kind of forecasting includes a number of management stages, which go from the elaboration of plans and the determination of competitiveness factors to the forecast of market demand.

Concerning the evolution of international competition, Snieška (2008:32) admits the existence of four competitive stages, which are closely related to the two types of competitiveness discussed above: 1) costs and factors of production; 2) investment growth; 3) innovation and technology; 4) world economy internationalization. The first two stages are clearly connected to the price-led competitiveness strategy, whereas the last two stages may be associated with technology-led competitiveness.

Summing up competitiveness is a relative concept that has been evolving over time. It is undeniably related to costs, quality issues but nowadays it is also connected with economic sustainability and social concerns. Competitiveness can be accessed at micro and macro levels. Being competitive is one of a main goal for every country, sector and firm as it is one of the major sources of economic and social well-being.

2.3 Upgrading as a competitiveness-building strategy

In order to sustain competitiveness, an industry, a country or a product must be continuously adjusted to consumers' changing preferences, being capable of creating value. In these terms, *economic upgrading* is usually seen as a “process by which economic actors – firms and workers – move from low-value to relatively high-value activities in global production networks” Gereffi (2005: 171). It is a multi-faceted and sophisticated process that includes changes in business strategy, production structure, technology, policy and market organization (Bernhardt and Milberg, 2012). Ponte and Ewert (2009) define it as “one of the main ways through which developing country firms or industries can respond to the challenges of globalization and increased competition” (2009: 1637), and that is essentially accomplished by producing better products and improving production processes.

Upgrading processes may have distinct trajectories, which refer to the combination of various and, at times, contrasting dynamics in an industry as a whole. According to this line of thought, industry upgrading is the result of the aggregation of firm-level changes. In a context of global value chains, the denomination of upgrading is used to point out ways for developing economies producers to “move up the value chain” (Ponte and Ewert, 2009: 1638).

In early days, the participation in GVCs was believed to offer firms from developing countries the opportunity to access new markets and technologies as well as the chance to acquire know-how and information from lead firms. However, firms are required a certain degree of capabilities to get these benefits (Bernhardt and Pollak, 2016). There are two possible *roads* that lead to competitiveness. The *low road* is often the one indicated to firms locked in low value-added activities and that struggle to maintain their competitiveness through low costs by compressing both wage rates and profit

margins. The *high road* is frequently called *economic upgrading* and its purpose is to sustain and improve competitiveness by investing in innovation, enhancing both productivity and quality standards (Bernhardt and Pollak, 2016).

Upgrading can be studied also by the ways knowledge and information run from the main firms to their suppliers and buyers. Upgrading is about gaining capabilities and entering new market segments by participating in specific chains. Ponte and Ewert (2009) argue that in order to stimulate upgrading, the learning process should depart from lead firms, rather than through interactions amongst horizontal firms. Alternative ways would be knowledge flows of business systems or national systems of innovation (Lundvall *et al*, 2002).

Bernhardt and Pollak (2016) take a different stand, as they claim that economic upgrading can be driven by both horizontal and vertical coordination. The horizontal coordination intensifies the collaboration among firms resorting to collective structures, allowing for some sort of equilibrium between competition and cooperation. On the other hand, vertical coordination strengthens relations among functional nodes to move from one-off spot transactions to long-term business relations.

In some cases, economic upgrading can stimulate the development of *social upgrading* in global value chains, but this is by no means guaranteed. Social upgrading can be seen as an increase in workers' benefits and rights contributing to the improvement of employment quality. It involves the creation of employment, the promotion of dignified work and the respect for labour principles and ethics (Bernhardt and Pollak, 2016). The improvements in workers' wellbeing incorporate measurable items, such as wages, working hours, and also non-quantifiable features as empowerment, enabling rights and freedom of association.

International competitiveness relies in some cases in the squeeze of production costs, pressuring firms to use low cost production factors, including wages, while maximizing quality. In labour-intensive sectors, such as textiles and apparel, low wages are common as well as unstable employment contracts. Precarious labour conditions are prevalent (Bernhardt and Pollak, 2016). This situation is leading to a conscious aware that although there are economic benefits from participating in GVCs that does not necessarily promote new, better or stable jobs. There are cases of success, such as the

Morocco garment sector, in which increased production efficiency contributed for excessive overtime hour's reduction, contributing therefore to labour improvement, but that is far from being universal (Bernhardt and Pollak, 2016).

In a nutshell, economic and social upgrading are two complex and sophisticated processes with a multi-dimensional character that it is often overlooked. Economic upgrading means that firms take the high road to competitiveness, choosing to promote productivity and quality, whereas in the low road trajectory firms adopt a policy of low costs and profit-squeezing (Bernhardt and Pollak, 2016).

2.3.1. Types and measurement of economic upgrading

Usually, four main upgrading types are considered: product, process, organizational and inter-sectorial upgrading (Ponte and Ewert, 2009). There are some difficulties associated with this classification as it can be challenging to draw a line between the different types of upgrading. For instance, new processes may lead to new product categories. Regarding process upgrading, it does not fully recognize the significance of standards set by buyers. Product and process upgrading trajectories are often applied to the production process alone, neglecting other ways of “doing things more competently” (Ponte and Ewert, 2009: 1639).

The normative view of product upgrading sees it as *enhancing a product's value added* and its complexity and sophistication. However, consistency, volume and/or an extensive product portfolio are equally important. The main aspects taken into account in order to evaluate product upgrading are undoubtedly rising unit prices (that is dependent on buyer power in a specific GVC as well as on the dynamics of competition from further suppliers as a whole) and volume and consistency. In sum, the product upgrading process implies the sophistication and complexification of products, while increasing their unit value (Ponte and Ewert, 2009).

Process upgrading implies accomplishing a more effective transformation process of inputs into outputs by reorganizing the productive activities (Ponte and Ewert, 2009). The main features to be taken into account to assess process upgrading are certifications, marketing and branding.

Functional upgrading requires obtaining new functions that boost the skill content of activities. It may also be associated to the abandonment of old functions with low-skill content (Ponte and Ewert, 2009).

The fourth and last upgrading category (inter-sectorial upgrading) can also be named “inter-chain upgrading” and it is associated to the use of competences gained in a particular segment to a higher value-added segment of the chain. It is associated to broad movements of structural change in the economy.

Providing high levels of quality can be the key to create a profitable product and the creation of related products may be also an important strategy, as there is always a risk of being overcome by competitors in quality and price matters. Economies of scale accumulate from process upgrading and simpler sources, for instance, by aggregating orders to rise the sales’ volume (Ponte and Ewert, 2009). For some firms, lowering the value of products sold in high quantities can be a more profitable option, entailing product “downgrading”. Traditionally functional upgrading was privileged over other indicators of upgrading, but nowadays a more eclectic view, focusing on the links among various forms of GVC governance and possibilities of upgrading, is generally preferred (Ponte and Ewert, 2009).

Moreover, as indicated by Bernhardt and Pollak (2016), the product –process –function–inter-sector upgrading categorization does not take into account other growth paths that firm or firms’ networks can choose. It is thus necessary to introduce two new concepts: *channel upgrading* and *supply chain upgrading*. The first concept is related to the market diversification to new buyers, in terms of geography or new products, whereas the second establishes and/or reinforces “backward linkages within supply chains” (Bernhardt and Pollak, 2016:3).

Summarizing, six different upgrading categories can help understand and evaluate industrial upgrading. Product upgrading shows how a product is being produced, how complex it is and if it is increasing its value; process upgrading is related to the organization and efficiency of production; functional upgrading regards the shift to higher-skill functions; inter-sectorial reflects changes towards high-tech and high-skill sectors; channel upgrading evaluates the market expansion and the supply chain

upgrading is connected to backward interactions within supply chains. Table 1 provides a synthesis.

Table 1: Upgrading categories

Type of upgrading	Description
Product	More sophisticated products with higher value added.
Process	Reorganization of the production leading to more efficiency.
Functional	Gaining/abandoning functions in order to enhance capability and to keep know-how in activities.
Inter-sectorial	Using skills from one function of the chain value in another sector or chain.
Channel	Related to market broadening searching for new buyers, geographic and/or product markets.
Supply Chain	Establishes or strengthens backward connections inside supply chains.

Source: Author's own elaboration.

In order to assess the aforementioned categories of upgrading, various indicators can be used. Each metric focuses on a specific element of innovation and neglects others. While input measures overlook the effectiveness and productivity of inputs, output measures neglect differences in technology across sectors and the effectiveness of the innovation process. These limitations evidence the dangers of relying on single indicators, advising the use of several metrics in simultaneous. In this respect, a common procedure consists in using data on both unit values and market shares (Kaplinsky and Readman, 2005).

Successful product innovation is expected to lead to a greater willingness of consumers to pay higher prices, and thus export unit values (the ratio between value and quantity of exports) are usually computed to assess upgrading. There are, however, some flaws associated with this indicator, as it can be influenced by exchange rates, fluctuations of input prices or production inefficiencies, rather than reflecting increases in product quality.

In order to assess the nature of the change underlying the increase in unit values, market shares – a typical indicator of international competitiveness – are usually taken into

account. Increasing global market shares can reflect product innovation and growing relative product values or a combination of lower relative costs and a more than proportional rise in traded volumes. Kaplinsky and Readman (2005) establish a direct relationship between unit prices and market shares, from which four outcomes are devised (Figure 2). When both unit values and market shares rise, there is evidence of product upgrading (Quadrant 2); if market shares decrease, then product upgrading has failed and the product is not attractive enough to pay higher prices (Quadrant 1). If unit values fall and producers are still unable to increase market shares, then both product and process upgrading have been unsuccessful (Quadrant 3). Nonetheless, if dropping prices are followed by market share gains, then the outcome will be process competitiveness (Quadrant 4). Such an understanding relies on the assumption of product homogeneity, constant exchange rates as well as stable producers' outcomes. It also assumes that cost changes represent changes in efficiency, rather than fluctuations in the costs of inputs.

	MARKET SHARE DECREASES	MARKET SHARE INCREASES
UNIT VALUE RISES RELATIVE TO INDUSTRY AVERAGE	Quadrant 1 Failed product upgrading	Quadrant 2 Product upgrading
UNIT VALUE FALLS RELATIVE TO INDUSTRY AVERAGE	Quadrant 3 Product and process downgrading	Quadrant 4 Process competitiveness

Figure 2: A schema for assessing product and process upgrading and downgrading.

Source: Kaplinsky and Readman (2005: 6).

A very recent application of upgrading metrics in the apparel industry can be found in Bernhardt and Pollak (2016). The authors select four manufacturing GVCs (apparel, automotive, mobile phones and wood furniture) to measure economic and social

upgrading between 2000 and 2012, considering 34 countries from four continents.³ The results reinforce the idea that the apparel manufacturing is concentrated in particular countries and regions, namely the East, Southeast and South Asia, a consequence of the Multi-Fibre Arrangement elimination in 2005. The study also indicates that China, Bangladesh, Vietnam, Turkey, Spain and Netherlands have had economic upgrading from 2000 to 2012. The former four countries have also experienced social upgrading through the increase in employment and real wages. Cambodia, Pakistan, India and Indonesia experienced a rise of market shares and a reduction in relative unit values. Cambodia and Pakistan experienced an increase in employment but a cut in real wages, suggesting that they have pursued the *low road* towards competitiveness. India and Indonesia, on the other hand, experienced social upgrading, indicating that some degree of process upgrading has been achieved, lowering costs and at the same time, improving competitiveness. In contrast, 23 out of the 34 countries analysed were not able to expand world market shares. According to Bernhardt and Pollak (2016), some of these countries experienced cost increases, losing efficiency relative to other countries. At the same time, other countries might be directing their focus on high-value products inside this sector, entering niche markets. From the listed countries only Belgium, Madagascar, Sri Lanka and Portugal haven't increased real wages, while simultaneously they created jobs. The majority of countries which lost market shares are developed ones, which suggests a move out of the sector. At the same time, a number of countries have in fact experienced economic downgrading (Thailand, Mexico, South Korea, Philippines, Malaysia, Taiwan PRC, Dominican Republic, Honduras and El Salvador). It is possible that some of these countries are facing structural transformations, moving to higher value added sectors, and thus this specific economic downgrading may not necessarily mean a bad thing.

³ Bangladesh, Belgium, Cambodia, China, Dominican Republic, El Salvador, France, Germany, Honduras, India, Indonesia, Italy, Madagascar, Malaysia, Mauritius, Mexico, Morocco, Netherlands, Pakistan, Peru, Philippines, Poland, Portugal Romania, South Korea, Spain, Sri Lanka, Taiwan PRC, Thailand, Tunisia, Turkey, UK, USA.

3. Trends in textiles and apparel exports, 2000-2014

3.1. Major exporters and exports' composition

Textiles and apparel play an important role in overall international flows. Taken as a whole, these sectors accounted for 14% of total world exports in 2014 (CHELEM database⁴). In this year, the top 20 exporters were responsible for 84% of world exports, a very high figure, which has inclusively been increasing over time: the same countries accounted for about 3/4 of world exports in 2000.⁵

Textiles and apparel are usually seen as traditional, low-technology and labour-intensive sectors, being important sources of exports in developing economies (cf. Table 2). In 2014, China was the major exporter of textile and apparel, with a substantial difference to the second major exporter (India), accounting for almost 40% of world total exports.⁶ Other developing economies, such as Pakistan, Mexico and Indonesia were also included in the list of major exporters. Nevertheless, twelve out of the twenty top export countries in textiles and apparel are in fact some of the most advanced and industrialized countries in the world, as can be seen in Table 2.

⁴ <https://chelem.bvdep.com>

⁵ Author's computation based on CHELEM.

⁶ <http://wits.worldbank.org/product-analysis-visualization.html>

Table 2: Textiles and apparel top exporters (2014)

Country	Exports (m. USD)	Rank 2014	Rank 2000
China	286 171	1	1
India	38 559	2	8
Italy	36 330	3	3
Germany	34 573	4	5
Hong Kong	29 118	5	2
Turkey	29 005	6	10
USA	26 047	7	4
Spain	16 686	8	16
France	16 427	9	6
Belgium	15 576	10	9
Netherlands	15 155	11	17
Pakistan ^{*7}	13 714	12	11
UK	13 295	13	12
Indonesia	12 735	14	13
Japan	8 350	15	14
Thailand	7 554	16	15
Mexico	6 931	17	7
Poland	6 918	18	19
Portugal	6 098	19	18
Denmark	5 372	20	20

Source: Comtrade and author's own computation (accessed in March 2016)

The list of top exporters did not change much during the past decade and a half. Selecting the top 20 exporters in 2000 based on the Comtrade database, one gets similar results: Pakistan is not included because no data were available for this country prior to 2004, the other two countries which appear in the top 20 in 2014 but were not within the top 20 in 2000 are Denmark and Poland.⁸ There were some changes in countries' individual positions, however: India, Germany, the Netherlands, Spain and Turkey improved their rank, whereas Belgium, France, Hong Kong, Indonesia, Japan, Mexico, Portugal, Thailand, UK and the US experienced a drop. China maintained its leading position and Denmark continues to close the ranking. Both Italy and Poland secured their place at 3rd and 18th places, respectively.

⁷Due to lack of data regarding Pakistan before 2000, the comparison with other countries is made with 2004 values.

⁸ The three countries listed in 2000 which were not included in 2014 were Republic of Korea, Bangladesh and Other Asia nes.

Although the importance of these sectors varies considerably across countries, being more significant in less developed ones (Figure 3), a general trend of decline is found in their export share between 2000 and 2014. Pakistan and Turkey figure as the countries in which the sector presents the highest export shares, being followed by India and China, by this order. In 2000 only two developed countries (Denmark and Portugal) figured among the countries where the sector's share in total exports approached 20%. In the more recent period, only less developed or emergent economies were in this situation. Japan is the country which presents the lowest share in 2014 (1%), being followed by the US, Mexico, Germany, the UK and the Netherlands.

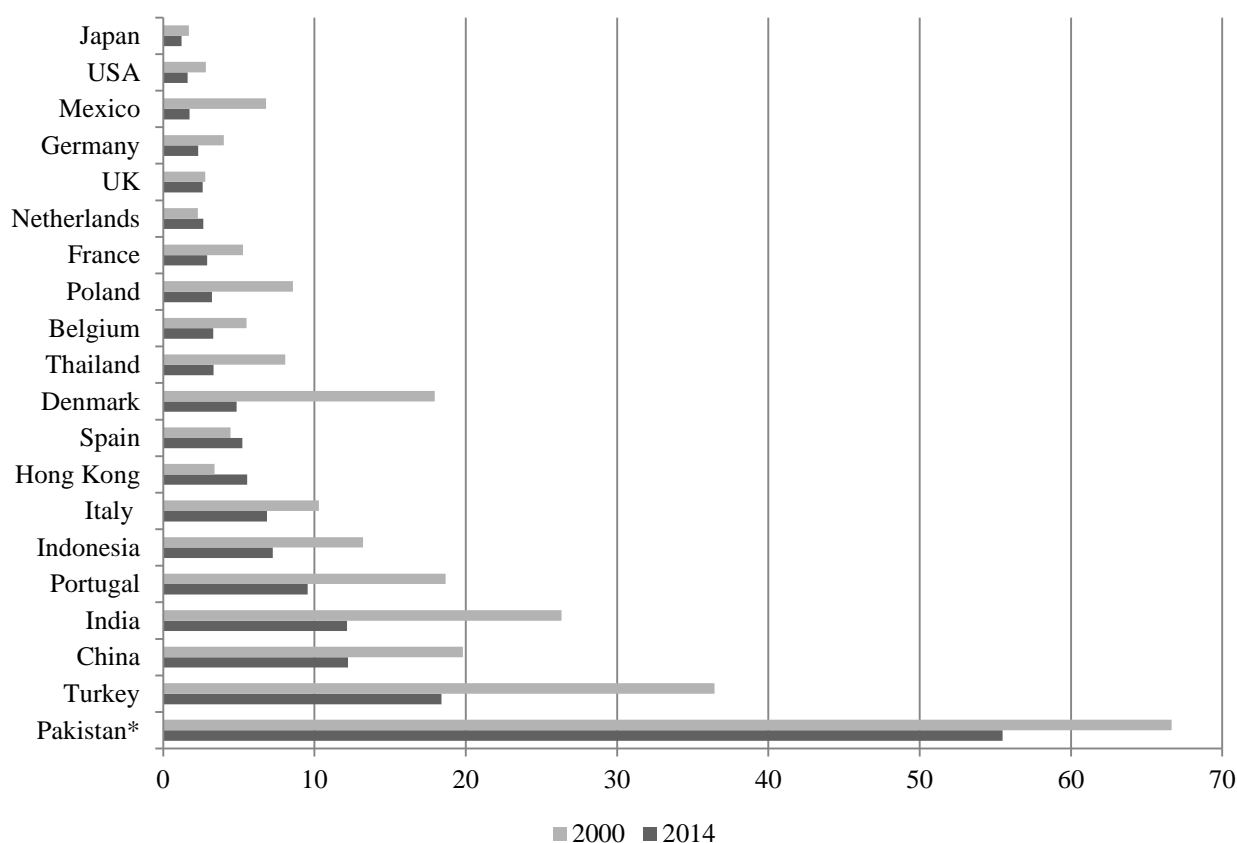


Figure 3: Share of textile & apparel in total exports (20 top exporters, 2000-2014, %);

Source: Comtrade and authors' own computation

The relative size of apparel in the total exports of apparel and textiles has increased in most countries during the period under study, as can be seen in Figures 4 and 5. The textile industry became gradually less important, as the raw material is cheaper than apparel, with the latter becoming more interesting for trade. In 2014, only three countries (Thailand, USA and Japan) had a textile share above 50%, with Japan maintaining the highest textile share during the whole period (85% in 2014, against 88% in 2000). In contrast, countries like Denmark, Mexico, Spain, Poland and Portugal present particularly large apparel shares.

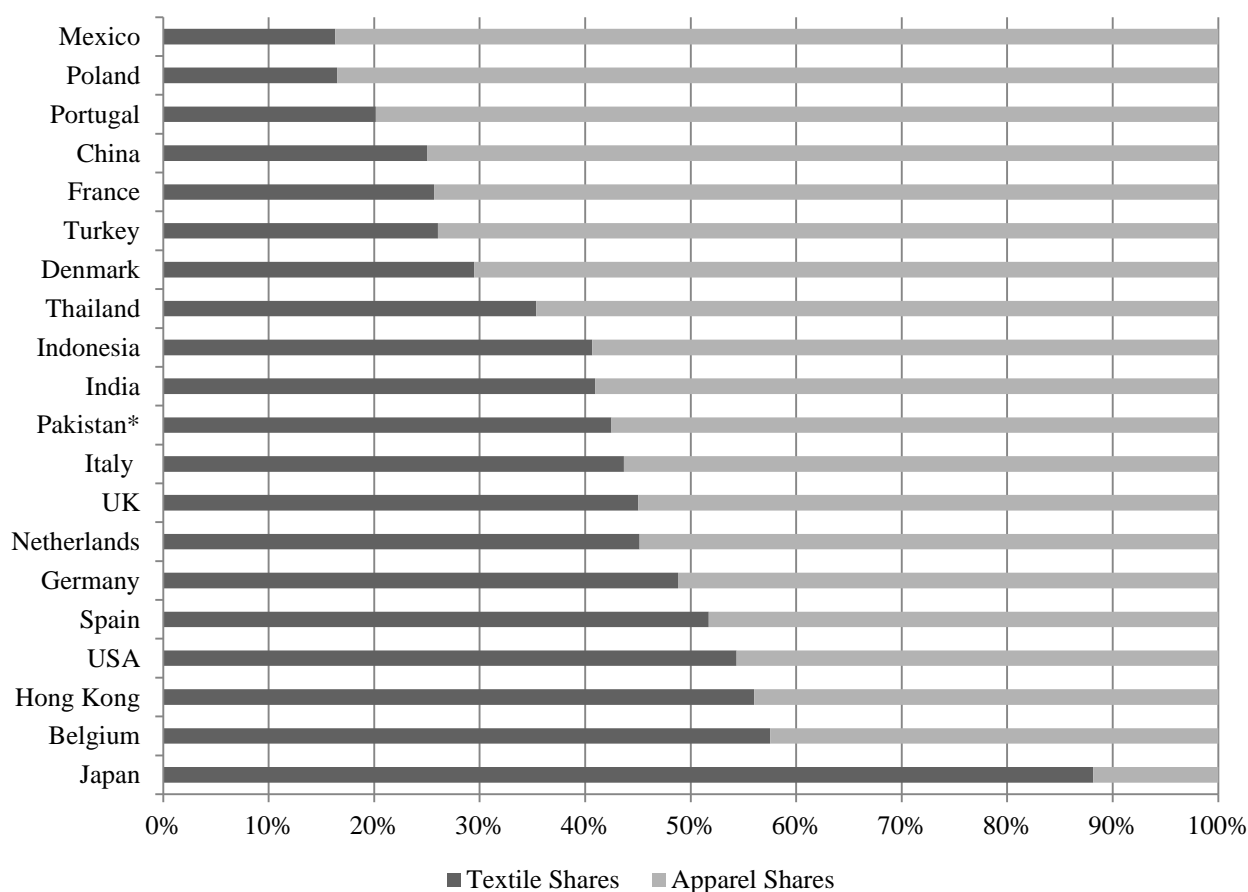


Figure 4: Textile and apparel shares (2000, top exporters);

Source: Comtrade and authors' own computation

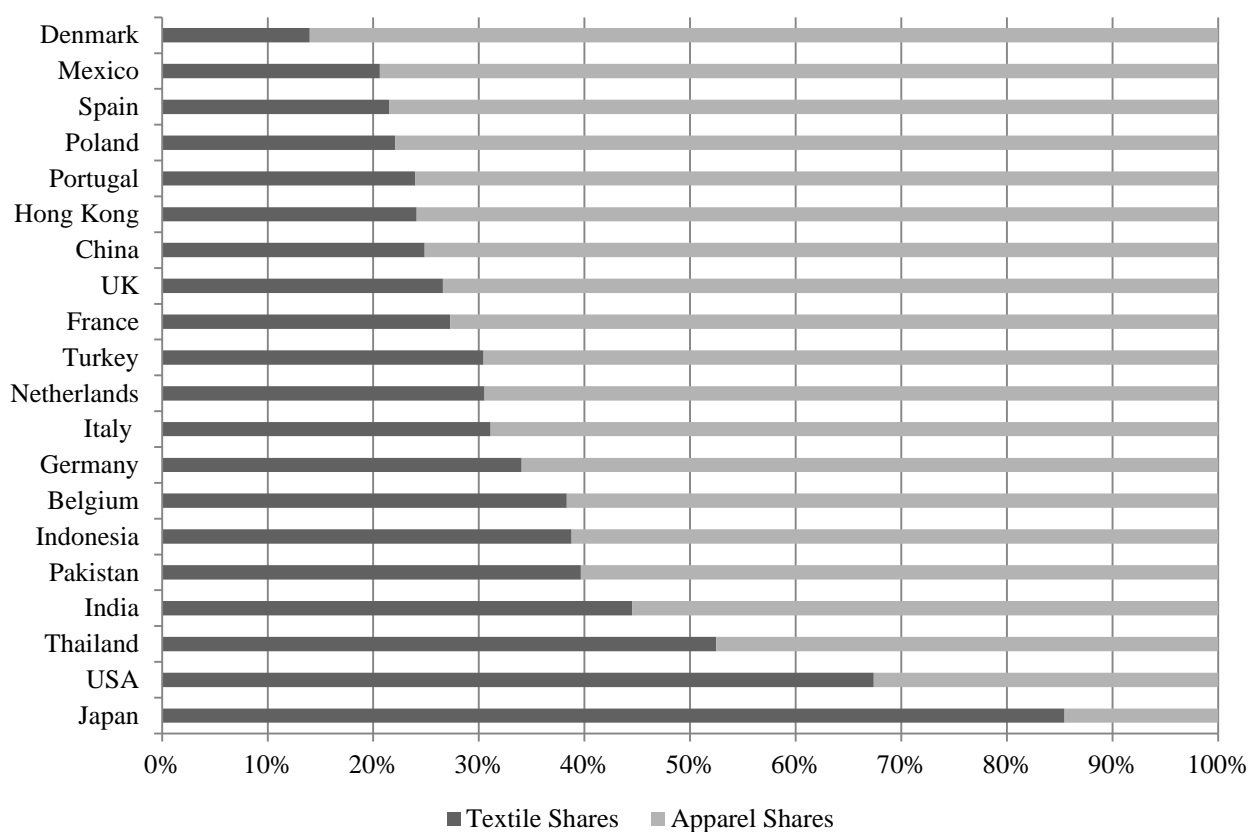


Figure 5: Textile and apparel shares (2014, top exporters);

Source: Comtrade and authors' own computation

Looking at finer detail, it can be seen that there are also substantial differences in the composition of the goods exported within textiles and apparel (Figures 6 and 7). Computations are based on the Harmonized System (HS) classification, whose main categories (10 in textiles and 4 in apparel) are described in Table 4.

Table 3: HS classification of textiles and apparel products

Category	Description
Textiles	
50	Silk
51	Wool, animal hair, horsehair yarn and fabric thereof
52	Cotton
53	Vegetable textile fibres nes, paper yarn, woven fabric;
54	Manmade filaments;
55	Manmade staple fibres
56	Wadding, felt, nonwovens, yarns, twine, cordage, etc
57	Carpets and other textile floor coverings
58	Special woven or tufted fabric, lace, tapestry etc
59	Impregnated, coated or laminated textile fabric
Apparel	
60	Knitted or crocheted fabric
61	Articles of apparel, accessories, knit or crochet
62	Articles of apparel, accessories, not knit or crochet
63	Other made textile articles, sets, worn clothing etc

Source: Comtrade

In 2000, in 16 out of 19 countries the most exported categories were two apparel commodities: 61 - Articles of apparel, accessories, knit or crochet and 62 - Articles of apparel, accessories, not knit or crochet. Portugal was the country in which the export share of the former category was the highest, whereas the same happened in Poland with regard to category 62. In Belgium, Germany, the US and Japan the export share of this commodity was relatively small (about 20%).

Textile commodities present, in general, lower export figures. In 2000, China and India were the two only exporters of silk (50) from the countries in the sample, which accounted for just 2% of their exports. Categories 53 (Vegetable textile fibres), 56 - 58 (Wadding, felt, nonwovens, Carpets, Special woven or tufted fabric, etc.) and 63 (Other made textile articles) are relatively more important in developed European economies exports, such as Belgium, France, Germany, Portugal and Poland. Japan and Hong Kong present relatively high shares in categories 55 (Manmade staple fibres) and 60 (Knitted or crocheted fabric), Pakistan is the major exporter of Cotton (52), followed by the US, which has a long tradition in producing and exporting this commodity.

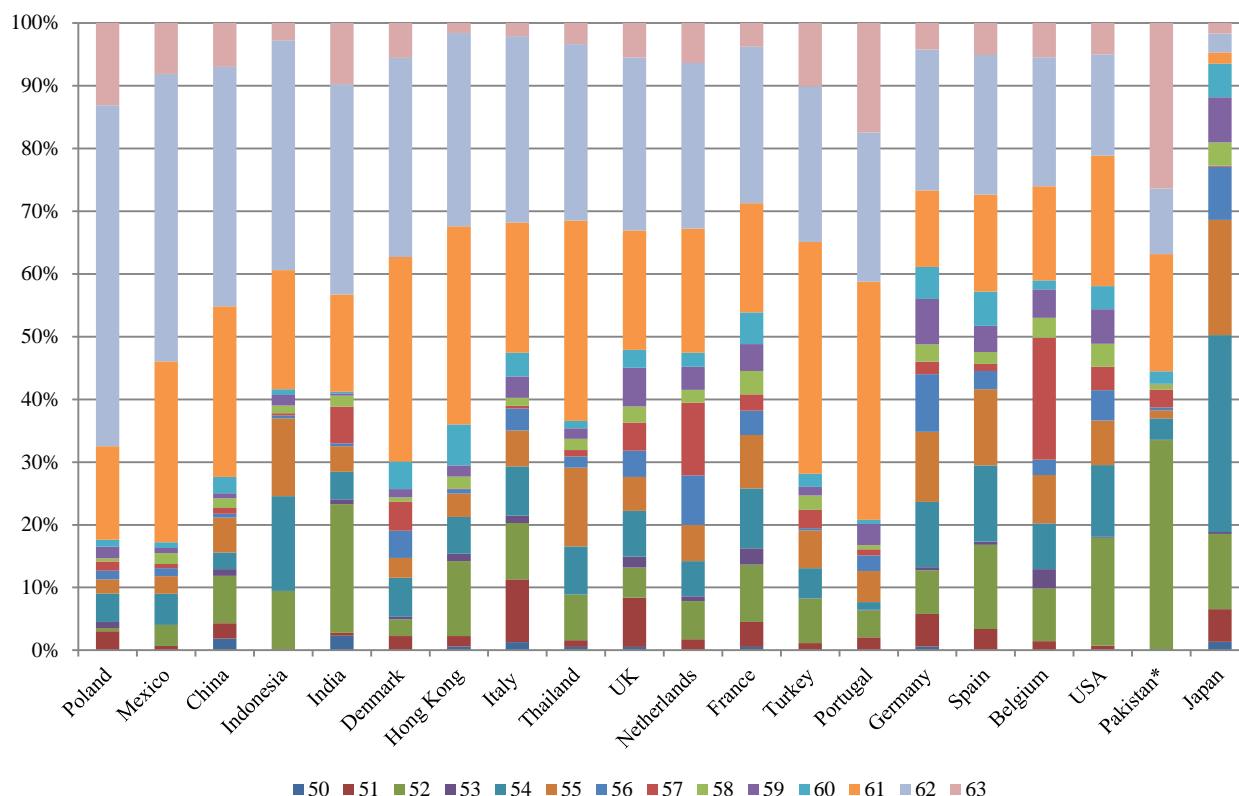


Figure 6: Exports composition in textiles and apparel (HS categories, 2000)

Source: Comtrade and authors' computations

In 2014, exports of silk were still rather low, with only four countries from the sample (China, France, Italy and Japan) exporting this product. Japan, which, as indicated earlier, presents the highest share of textiles in total exports of textiles and apparel, had the highest share of exports in categories 54, 55, 56 and 59. Contrastingly, Spain, Denmark, Mexico and Italy were the countries which experienced strongest increases in the apparel share, showing the highest shares in categories 61 and 62. Globally, there has been some convergence in the export structure of textiles and apparel between developed and developing economies, although some specificities remain. Category 60 Knitted or crocheted fabric is relatively more important in Hong Kong. Pakistan presents high shares in both textiles and apparel, as both categories 52 and 63 account for a substantial share of the country's exports. Categories 51, 53 and 57 (all regarding textiles) were relatively more important in European countries as Italy, France and Belgium, respectively.

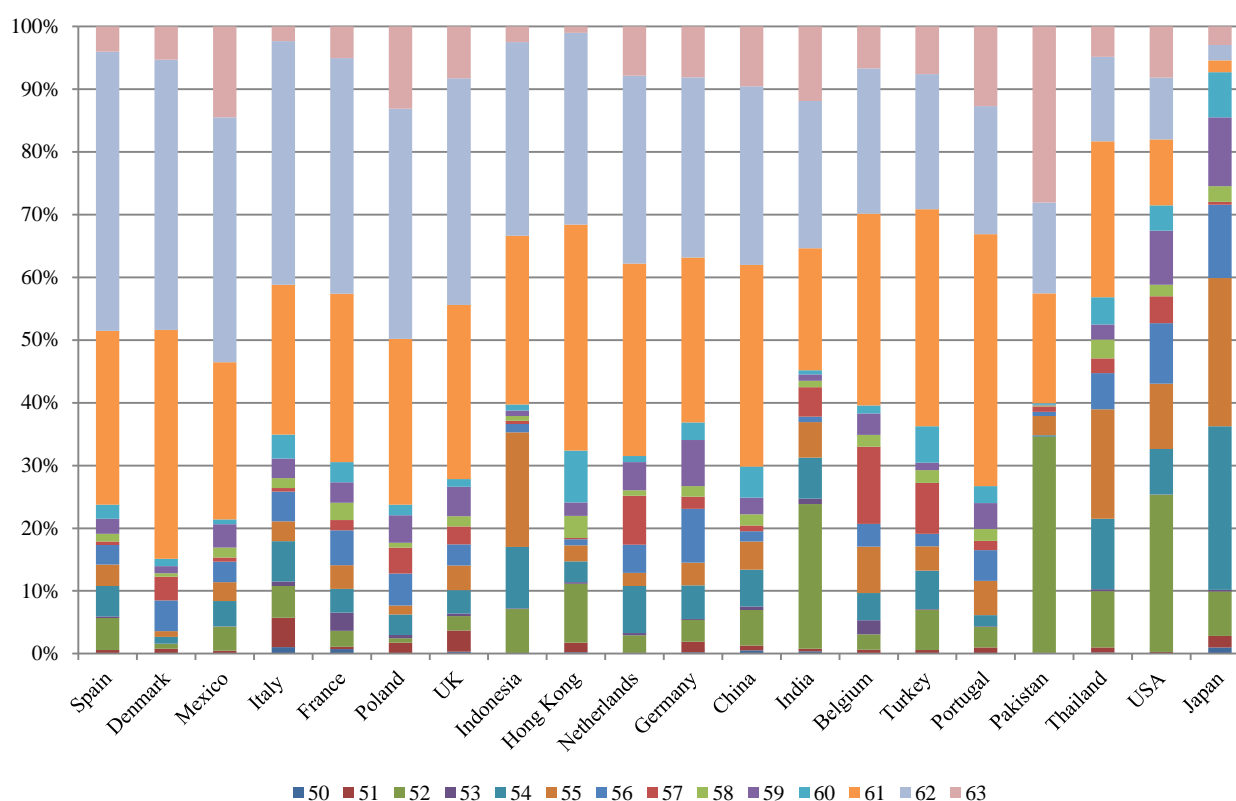


Figure 7: Exports composition in textiles and apparel (HS categories, 2014)

Source: Comtrade and authors' computations

In order to find groups of countries with a similar composition of exports, an application was made of cluster analysis using SPSS⁹. The variables under comparison were the share of textile and apparel in total country's exports, the share of textiles in total exports of textiles and apparel and per capita GDP. The hierarchical clustering approach was used, since the sample of countries was relatively small. This method allows to identify sequential clusters by calling upon formerly established ones (Kaufman& Rousseeuw, 2009). Use was made of the agglomerative approach, which sorts cases by progressively merging observations until a single cluster is found at the very end (all-inclusive cluster). Moreover, the Squared Euclidean distance was used as the method for the measurement of dissimilarity, and the average between-groups linkage method as the rule for the cluster formation. Variable values were taken as standardized z-

⁹ Statistical Package for the Social Sciences

scores. Based on these assumptions, the dendrograms depicted in Figures 8 and 9 were obtained, which show the clusters' combinations at several distances. Although no absolute rule for choosing the appropriate composition of clusters exists, usually a satisfactory solution is characterized by preceding a sudden gap in the dissimilarity/similarity coefficient. Following this rule, in 2000 two major groups of countries can be considered:

1. A cluster formed by Denmark, France, Germany, Italy, Japan, Netherlands, Spain, UK and the US (*Cluster 1*);
2. A cluster including China, Hong Kong, India, Indonesia, Mexico, Poland, Portugal, Thailand and Turkey (*Cluster 2*).

Cluster 1 includes only developed economies, some of which are the major world potencies. Cluster 2 is mostly composed by developing economies, along with Poland and Portugal. Belgium and Pakistan form individual clusters, representing a clear outliers. In the first case that is due to the substantial share of textiles exports in exports of textiles and apparel, whereas the later it is due to the shares of both sectors in total country's exports.

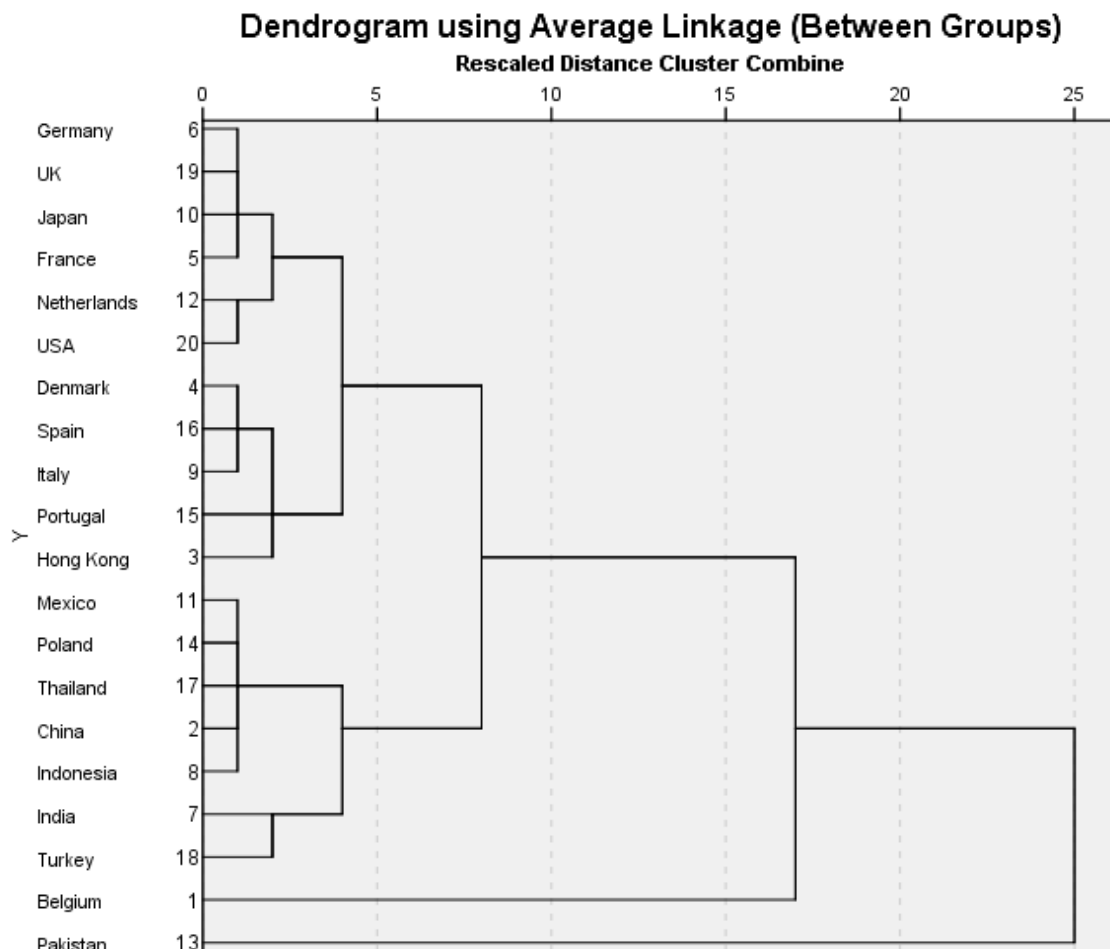


Figure 8: Dendrogram (2000)

Source: Comtrade and authors' own computation

In 2014 a more mixed composition of clusters is found:

1. A cluster formed by China, Denmark, France, Honk Kong, India, Italy, Mexico, Poland, Spain, Thailand, UK (*Cluster 1*);
2. A cluster which includes Belgium, Germany, Indonesia, Japan, Netherland, Pakistan, Portugal, Turkey, the US (*Cluster 2*).

Both clusters include a mixture of developing and developed countries. Pakistan is classified as an outlier. It can be seen therefore that after a decade and a half some convergence was achieved by some of the less developed economies relative to the more developed ones in what regards the relative importance of textiles and apparel in their economies. That is notably the case of China and India, which moved from Cluster

2 to Cluster 1. A more detailed analysis of countries trajectories is undertaken in the next section.

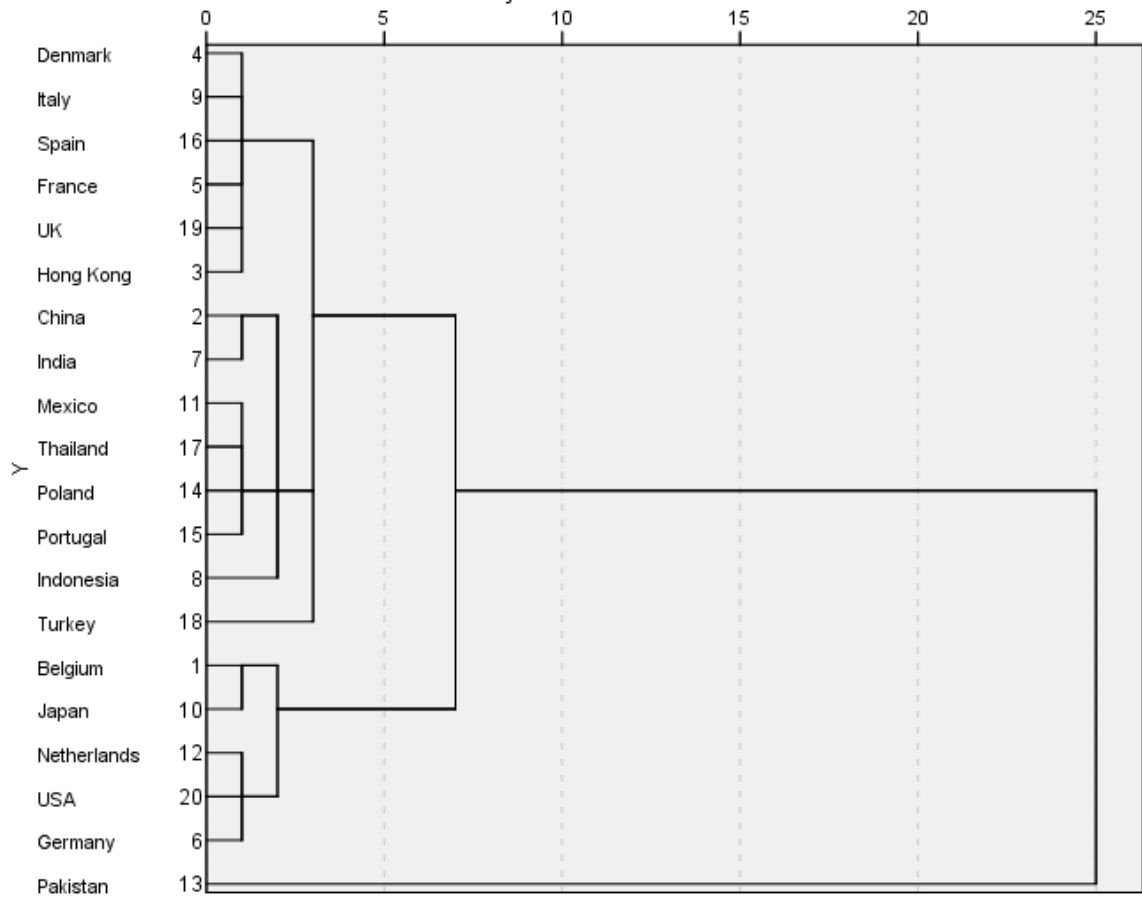


Figure 9: Dendrogram (2014)

Source: Comtrade and authors' own computation

3.2. Top exporters' economic trajectories between 2000 and 2014: market shares and unit values

Unit values are widely used indicators in the studies focusing on industry upgrading, being computed as follows:

$$UV = \frac{\text{Exports (value)}}{\text{Quantity (1000kg)}} \quad (1)$$

As indicated earlier (Chapter 2), the combined use unit values and market shares allows to determine product and process innovation. Four possible outcomes can be foreseen,

which are graphically depicted showing either successful or failed product upgrading, process competitiveness or general downgrading.

Unit values are computed using data from the Comtrade database. Data were gathered at the HS six digit level, which meant working with a total of 822 categories of textile and apparel products for each country and year under analysis.¹⁰ Since Comtrade only allows to download 20 categories at a time, more than 40 files were compiled and then assembled together. The extration process was rather time consuming, being aggravated by the existence of several blanc cells in netweight and trade value in the downloaded version. These had to be individually suppressed with the values available in the Comtrade preview window.¹¹

After extracting the data, computations of unit values were initially made at the 6-digit level, and then computed at a more aggregate level using weighted means, in which volume export shares of subcategories were taken as weights. The list of unit values at the 2 digit level can be found in the annex (Annexes 1 and 2).

In order to facilitate both the presentation and interpretation of results, unit values were divided in three major categories (*low*, *medium* and *high* values), by defining the cut points in the 33 and 66 percentiles. The results are presented in Tables 4 and 5.

¹⁰ The commodities HS 52, 55, 61 and 62 were the most complex ones as each was sub-divided in more than a hundred sub-categories, resulting in thousands of excel cells.

¹¹ A first extraction was made beginning at 1995, but the severe lack of quantity data (not available also in preview) determined the starting date of the study in 2000.

Table 4: Unit values in textiles and apparel (HS categories, 2000)

2000	50	51	52	53	54	55	56	57	58	59	60	61	62	63	Textile	Apparel
Belgium	high	low	medium	low	medium	medium	high	medium	medium	high	medium	medium	medium	low	high	medium
China	medium	high	medium	high	high	high	low	high	low	low	low	medium	medium	high	medium	medium
Denmark	low	high	high	high	high	high	medium	high	high	high	medium	high	high	high	high	high
France	high	low	high	low	medium	high	medium	low	high	high	high	high	high	medium	high	high
Germany	medium	high	high	high	high	medium	high	high	high	high	high	high	high	low	high	high
Hong Kong	low	medium	low	medium	low	low	medium	medium	low	medium	medium	low	low	low	low	low
India	high	medium	low	low	low	medium	low	high	low	low	low	low	low	high	medium	low
Indonesia	low	low	low	low	low	low	high	low	high	medium	low	low	low	medium	low	low
Italy	high	high	high	high	high	high	medium	low	high	high	high	high	high	medium	high	high
Japan	high	high	high	high	high	medium	high	medium	high	high	high	high	high	low	high	high
Mexico	high	high	low	medium	medium	low	low	low	medium	medium	medium	medium	medium	high	high	medium
Netherlands	high	high	high	low	medium	high	high	medium	low	high	high	medium	medium	low	medium	medium
Pakistan*	low	low	low	low	low	low	medium	low	medium	low	medium	low	medium	low	low	low
Poland	low	medium	medium	medium	low	low	low	low	medium	low	medium	low	medium	high	low	low
Portugal	medium	medium	medium	medium	medium	high	low	high	high	low	low	medium	high	high	medium	high
Spain	medium	low	medium	medium	high	medium	medium	high	medium	medium	high	high	high	high	medium	high
Thailand	low	low	medium	low	low	low	medium	medium	medium	low	low	medium	medium	medium	low	medium
Turkey	low	medium	low	high	low	high	low	medium	low	medium	low	low	low	medium	low	low
UK	medium	medium	high	high	medium	low	high	high	medium	low	high	high	low	medium	medium	medium
USA	medium	low	low	medium	high	medium	high	low	low	medium	medium	low	low	low	low	low

Source: Comtrade and authors' computations.

Table 5: Unit values in textiles and apparel (HS categories, 2014);

2014	50	51	52	53	54	55	56	57	58	59	60	61	62	63	Textile	Apparel
Belgium	high	low	medium	low	low	low	high	medium	low	medium	low	medium	medium	low	medium	medium
China	medium	high	high	high	low	medium	low	low	low	high	medium	medium	high	high	high	high
Denmark	low	high	high	medium	medium	low	low	high	high	high	high	high	medium	high	low	high
France	high	low	high	low	medium	high	medium	medium	high	high	high	high	high	medium	high	high
Germany	high	medium	medium	medium	high	high	high	high	high	high	high	high	high	low	high	high
Hong Kong	low	high	medium	high	high	high	high	low	high	high	low	high	high	medium	medium	high
India	medium	medium	low	low	low	low	low	high	low	low	low	low	medium	high	low	low
Indonesia	low	low	low	low	low	low	medium	low	Medium	low	low	low	low	medium	low	low
Italy	high	high	high	high	high	high	medium	high	high	medium	high	high	high	medium	high	high
Japan	high	high	high	high	high	medium	high	low	high	high	high	high	high	low	high	high
Mexico	high	high	low	low	low	low	medium	medium	medium	medium	high	medium	medium	high	high	medium
Netherlands	medium	low	high	low	high	high	high	low	low	low	low	medium	low	low	low	low
Pakistan	low	low	low	high	high	high	low	high	low	high	medium	medium	low	medium	high	medium
Poland	medium	medium	medium	medium	medium	low	medium	medium	medium	low	medium	high	high	low	medium	medium
Portugal	medium	medium	medium	high	medium	medium	low	high	medium	low	low	low	medium	high	medium	medium
Spain	high	low	medium	medium	high	high	low	low	medium	medium	high	low	medium	high	medium	medium
Thailand	low	high	low	low	low	low	medium	medium	high	low	medium	medium	low	medium	low	low
Turkey	low	medium	low	medium	low	medium	low	low	medium	low	low	low	low	high	low	low
UK	medium	medium	high	high	medium	medium	high	high	low	medium	medium	low	low	low	medium	low
USA	low	low	low	medium	medium	medium	high	medium	low	medium	medium	low	low	low	low	low

Source: Comtrade and authors' computations.

In 2000 seven countries (Belgium, Denmark, France, Germany, Italy, Japan, Mexico) presented high unit values in the textile sector as a whole, whereas six countries (Hong Kong, Indonesia, Poland, Thailand, Turkey and US) had low unit values (Table 4). Six other countries - China, India, Netherlands, Portugal, Spain and UK - were in an intermediate situation.

Regarding the apparel sector as a whole, seven countries (Denmark, France, Germany, Italy, Japan, Portugal and Spain) presented high unit values, six (Hong Kong, India, Indonesia, Poland, Turkey and US) had a low classification, and Belgium, China, Mexico, Netherlands, Thailand and UK shown intermediate values. Denmark, Germany, Italy and Japan were the countries with more categories classified in the high segment (11), whereas Indonesia presented most low unit value categories (10). Belgium had eight medium unit value categories, being the country with more product categories in this classification.

In 2014, there are still seven countries with high unit values in the textile sector, but the composition of this group has change, including China, France, Germany, Italy, Japan, Mexico and Pakistan. Another seven countries have low unit values in this sector, namely Denmark, India, Indonesia, Netherlands, Thailand, Turkey and the US, remaining Belgium, Hong Kong, Poland, Portugal, Spain and UK with medium unit values. On the apparel sector side, seven countries had high unit values (China, Denmark, France, Germany, Hong Kong, Italy and Japan), seven with low unit vales (India, Indonesia, Netherlands, Thailand, Turkey, UK and US) and six with an intermediate classification (Belgium, Mexico, Pakistan, Poland, Portugal and Spain).

Table 6 puts together the information from Tables 4 and 5, showing the evolution of unit values across countries and product categories. The symbol “++” signals an increase from low to high unit values, whereas “- -” represents the inverse situation. The sign “+” denotes an increase from low to medium or from medium to high unit values, the opposite standing for “-”. When the cellule is left blank, it means that no changes occurred in the classification. From the analysis of the table it can be seen that the categories in which most changes took place were 54, 55, 57, 60 and 62 and the country where unit values rose the most is Hong Kong (which had an increase in 11 out of 14 categories), followed by China, Netherlands, Poland and Turkey.

Taking into account textile unit values as a whole (including categories from 50 to 59) there are changes in only 8 countries. Belgium dropped from high to medium, India and the Netherlands dropped from medium to low, while Denmark dropped from high to low unit values. On the other hand, China, Hong Kong, Pakistan and Poland increased both their textile and apparel unit values. Meanwhile, the Netherlands, Portugal, Spain Thailand and the UK suffered a drop on apparel unit values. This last group of countries comprises both developed and developing economies. This result may come as a surprise, as normally, developed economies are associated with higher unit values as well as prices, but can signal also an increase in production efficiency.

Table 6: Unit values in textiles and apparel (HS categories: 50 – 63, 2000-2014);

Evolution	50	51	52	53	54	55	56	57	58	59	60	61	62	63	Textiles	Apparel
Belgium					-	-			-	-	-				-	
China			+		-	-		--		++	+		+		+	+
Denmark				-	-	-	-				+		-		--	
France								+								
Germany	+	-	-	-		+										
Hong Kong		+	+	+	+	+	+	-	+	+	-	+	+	+	+	+
India	-					-							+		-	
Indonesia							-		-	-						
Italy								+		-						
Japan								-								
Mexico				-	-		+	+			+					
Netherlands	-	--			+			-		--	--		-		-	-
Pakistan*				++	++	++	-	++	-	++		+	-	+	++	+
Poland	+				+		+	+				+	+	--	+	+
Portugal				+	-				-			-	-			-
Spain	+					+	-	--				--	-			-
Thailand		++	-						+		+		-			-
Turkey				-	-	-		-	+	-				+		
UK						+			-	+	-	--		-		-
USA	-				+			+								

Source: Comtrade and authors' computations

Crossing the information on unit values and market shares, it is possible to have an idea of the market (re)positioning of the major exporting countries during the period under analysis. As indicated earlier, the combination of data on unit values and market shares is required in order to establish the four main trajectory results: Failed product upgrading, product upgrading, product and process downgrading and process competitiveness. Market shares were computed using data from the Comtrade database. Data were gathered on total exports per country and per category summing the figures of the 822 sub-categories and relating this sum with total world exports on the product items under assessment.

The assessment of economic upgrading and downgrading trajectories is based on the position assumed by countries in each of the following quadrants: Quadrant 1 – *Failed product upgrading* is composed by the countries which have experienced an increase in unit prices and market share; Quadrant 2 - categorises the countries and sectors that have experienced an increase in both indicators: market shares and unit values, materializing *product upgrading*; Quadrant 3 - shows the exact opposite scenario, where both market shares and unit prices have suffered a decrease, characterized as *product and process downgrading* and Quadrant 4 - gathers the cases that have suffered a decrease of unit prices and a growth in market shares, resulting in *process competitiveness*.¹² Figure 10 shows the results as well as the number of categories per country that experienced a change in just one indicator. More details on these categories can be found in annex (Annex 3).

Nine countries are included in Quadrant 1 (Failed product upgrading), five of which are also present in another quadrant, and there is a wide mix of economies from Hong Kong and Mexico to the US and UK. Quadrant 2 (Product upgrading) includes only five countries, combining European developed economies (Netherlands and Poland) and Asian developing economies (China, India and Thailand). The third quadrant includes thirteen out of the twenty countries under analyses, which suggests the incapacity of maintaining innovation in several subsectors of the global textile and apparel industry, as they are lowering unit prices but at the same time losing market share. Once again, it

¹² See section 2.3.1 for a more detailed analysis of this classification.

is not possible to set a clear pattern, as this group includes a wide variety of developed and developing economies and ten HS Categories. Quadrant 3 is the one with the highest number of observations, which shows that several textiles and apparel sectors in several countries have experienced an overall downgrading.

The fourth and last quadrant, representative of process upgrading, comprises only seven countries and nine different HS Categories. The relatively small number of countries/industries suggests that this is not a dominant trajectory in the textile and apparel scenario.

One of the most evident cases of failed product upgrading is Hong Kong with ten categories in Quadrant 1, whereas the most successful case is China that was able to achieve an increase in unit values while increasing market shares (Quadrant 2) in four categories. Almost every country, more specifically thirteen out of twenty, have experienced a downgrading (Quadrant 3) at least in one category. Turkey is the country that effectively more categories have achieved process competitiveness: the growing strategy in the global market has been based in lowering unit values, which can be seen as productivity enhancing if costs have remained unchanged. From the observed results there is no clear pattern distinguishing developed and developing economies. Several developed countries have shown increases in unit values, but were not able to increase their market shares. There are also some countries whose market shares or unit values suffered no changes during the period under study, but have experienced a drop or a growth of only one of the indicators. In these cases, market share and unit values drops are more common than increases (Figure 10). Concerning unit values drops there are eleven countries in this situation and ten different HS Categories. On the other hand, eight countries have seen their market shares increasing in all fourteen categories and only six countries were able to increase their unit values in eight diverse categories.

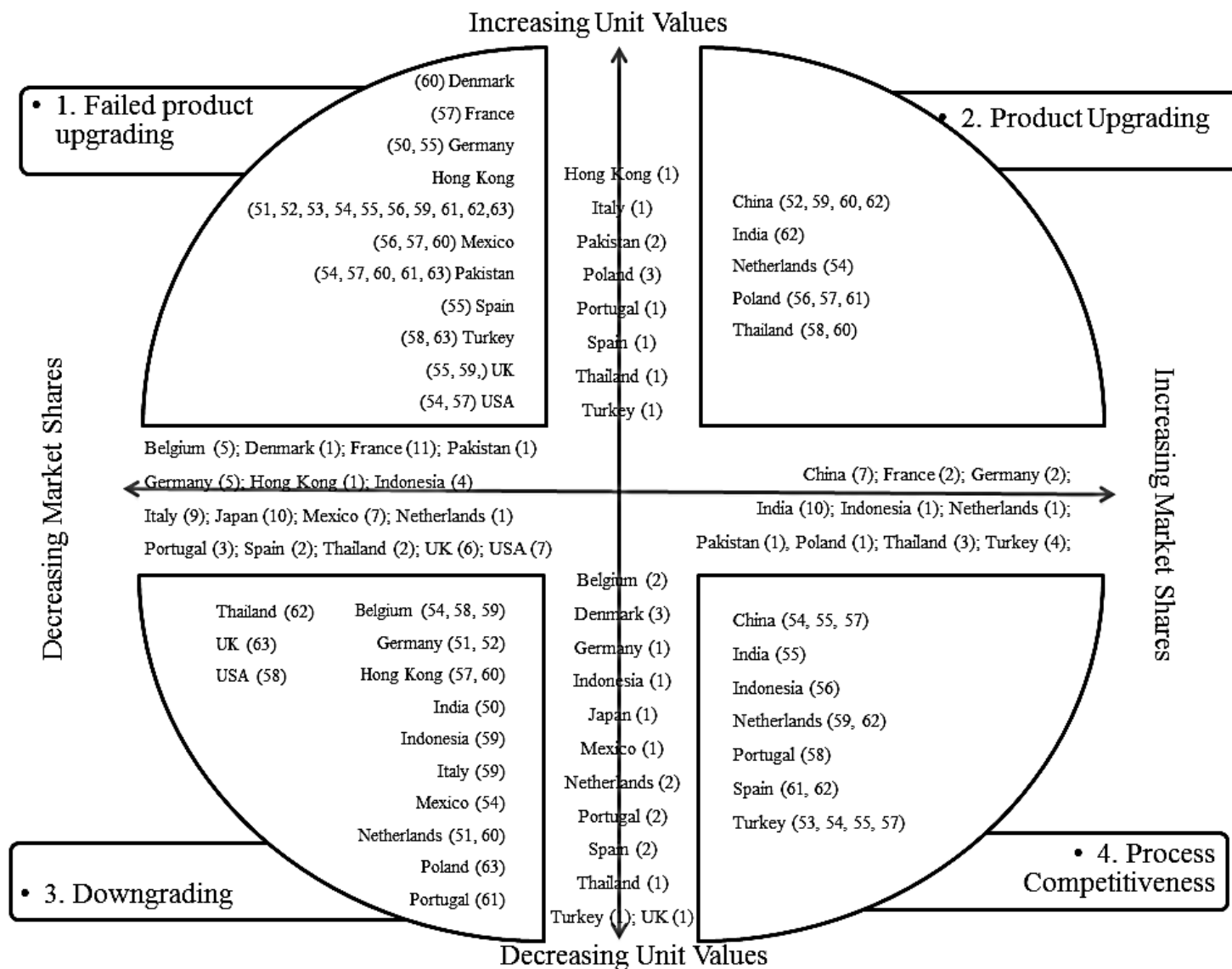


Figure 10: Innovative performance of countries' HS Categories

Source: Author's own elaboration

Figure 11 shows the overall trajectory of major exporters from 2000 to 2014, by putting together the information of textiles and apparel subsectors, respectively. As in Figure 10, in the right-up side of the vertical axis are represented the countries that have experienced growth in market shares and unit values. Five countries have been able to combine growth in both indicators, successfully achieving economic upgrading. This group gathers both developing economies (China, Thailand and Turkey) and developed ones (Poland and Netherlands). India also increased market shares but unit values suffered a decline. This combination leaves this country alone in the right-down side of the vertical axis.

Thirteen countries are placed in the left-up side of the vertical axis, which indicates an increase in unit values, but no success in increasing market shares. This group is dominated by developed economies (Belgium, Denmark, France, Italy, Japan, Spain, the UK and the US) but it also includes four developing economies (Indonesia, Hong Kong, Mexico and Pakistan).¹³

Alone in the left-down side of the vertical axis we find Germany that has suffered a decline in both indicators. This is the only country that has in fact faced economic downgrading in the textile GVC. This might suggest that the textile industry that still remains in the country is being gradually positioned in a low-segment value, probably being produced in a large scale, but with no extensive use of value enhancing features (e.g., innovation, fashion, design).

¹³ For the year 2000, there are no data available for Pakistan, therefore the values used in this computation regard 2004.

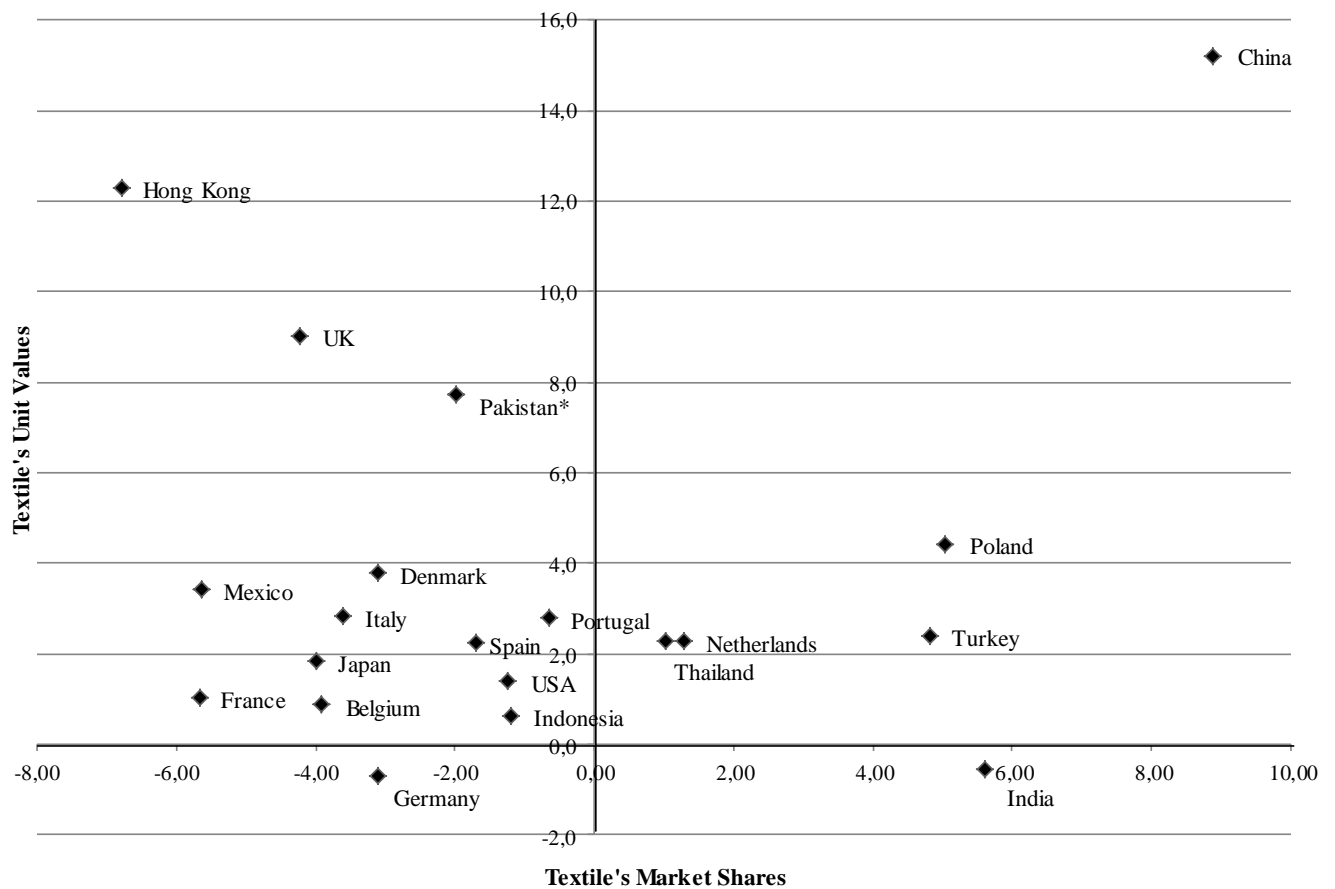


Figure 11: Upgrading and downgrading in the textile GVC (2000-2014)

Source: Comtrade and author's own elaboration

Figure 12 provides a similar analysis for the apparel sector. As before, the countries with the most positive experience are the ones placed in the right-up side of the vertical axis. This group is composed by both developed economies (Germany, Netherlands and Spain) and developing ones (China, India and Turkey).

Once again we find the majority of observations (thirteen) in the left-up side of the vertical axis: Hong Kong, Mexico, Pakistan, Thailand, Belgium, Denmark, France, Italy, Poland and Portugal. Moreover, three world potencies meet in the left-down side of the vertical axis which means their market shares and unit values have decreased (Japan, UK and the US), suggesting an evident economic downgrading in this given GVC. The right-down side quadrant is left blank as there are no reports of countries that

have experienced a decrease in unit values and an increase in market shares. It seems therefore that in apparel, increases in market shares have been obtained by rising up the value chain, which can be indicative for countries which are still heavily specialized in this sector of the importance to rely on value enhancing factors (e.g., technology, design, branding) in order to maintain their business.

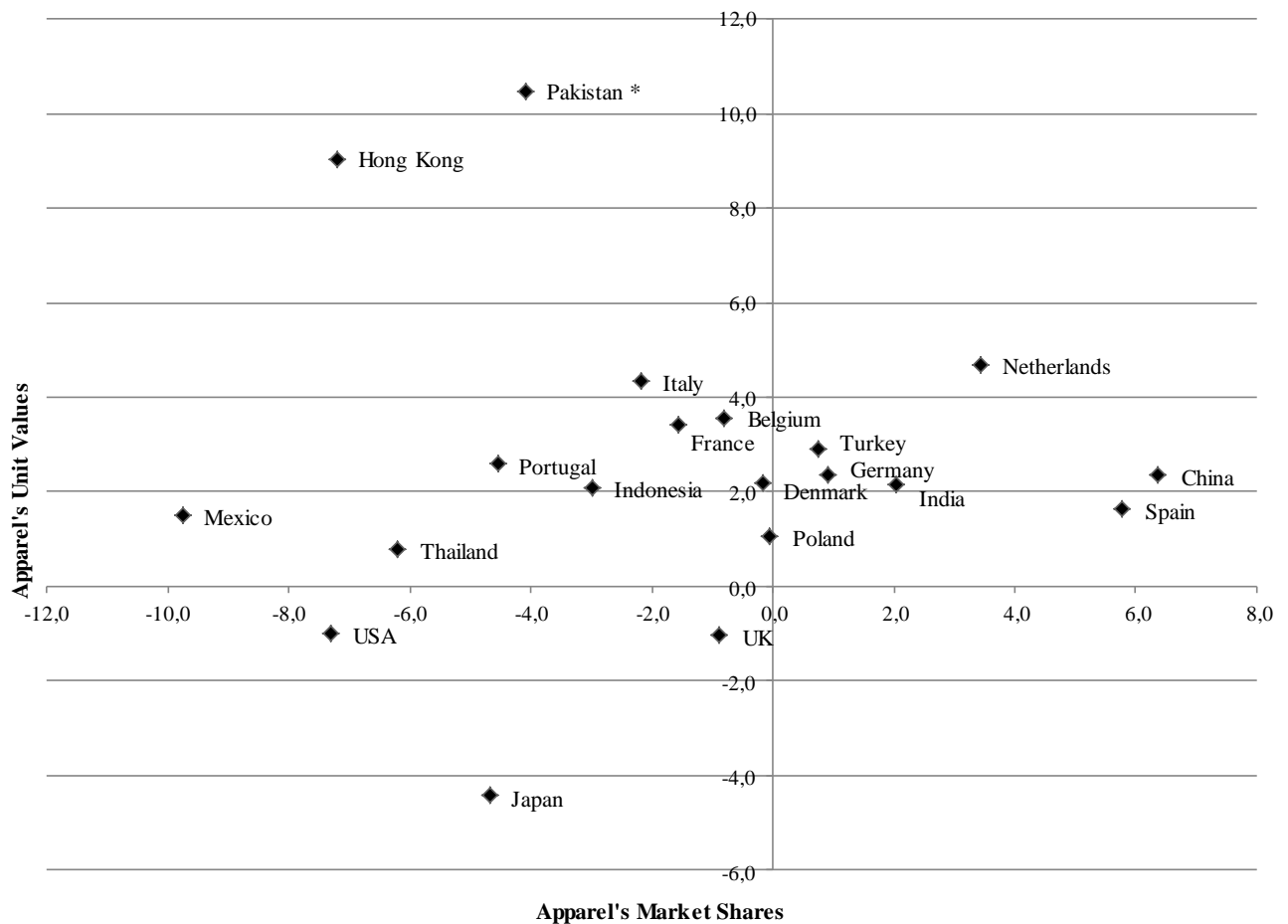


Figure 12: Upgrading and downgrading in the apparel GVC (2000-2014)

Source: Comtrade and author's own elaboration

4. Conclusion

Economic globalization has intensified interaction worldwide at many distinct levels. This phenomenon, which comes as a result of a complex historical process, has been responsible for bringing the world closer, although it spread unevenly among countries, leading to dissimilar impacts worldwide.

The growing globalization process has been undeniably impacting the international competitiveness as now most industries face severe competition. This is especially true with regard to textiles and apparel, in which strong pressure is put by emerging economies. Faced with fierce competition, firms can build their business strategies in two major blocks: by reducing costs or by increasing quality standards and differentiating products through innovation.

Relying on this theoretical background, in this study an analysis was made of the trajectories of the main textiles and apparel exporters during the past fifteen years. The investigation was based on the computation of market shares and unit values. Although these indicators are not perfect, they are helpful in the examination of distinct outcomes.

The evidence shows that the textile and apparel have been gradually losing ground in total world exports, with textiles losing importance relative to apparel. Categories 61 and 62 (Articles of apparel, accessories, knit or crochet and articles of apparel, accessories, not knit or crochet) are typically the most exported ones. During the period under analysis there was some complexification of countries' export structures, and the dichotomy "developed/developing countries" found in the beginning of the sample when applying cluster analysis is no longer evident in 2014. Some developing countries were able to upgrade substantially, as seen in the latter part of the dissertation.

The study of countries' innovative performance per textiles and apparel two digit HS categories shows that failing product upgrading and overall downgrading are more common scenarios than product upgrading and process competitiveness. Market shares and unit values drops are also more frequent than its increasing.

With regard specifically to the textile GVC, only one country has actually experienced downgrading (Germany), while India just suffered a decline in terms of unit values. The

five countries that have in fact been able to achieve an overall upgrading in this given GVC were China, Netherlands, Poland, Thailand and Turkey. Concerning the apparel GVC, six countries, including, developed and developing economies (China, Germany, India, Netherlands Spain and Turkey), have experienced economic upgrading as they increased both market shares and unit values. Japan, the US and UK had the opposite outcome, experiencing economic downgrading. The remaining countries (Belgium, Denmark, France, Hong Kong, Indonesia, Italy, Mexico, Pakistan, Poland, Portugal and Thailand) have increased their unit values but dropped their market shares, which means that the increase in price was not fully perceived by consumers as representing value increase.

China is the country that stands out with the most positive performance suggesting a clear upgrading trajectory. Textile and apparel sectors are losing relative importance in world exports, but to some extent that was expected as new products and new sectors keep emerging worldwide. The major finding of this study is that in almost every case of increasing market shares that was accomplished through an increase in unit values. This can be interpreted as a clear sign that in order to stay in business and gain competitiveness, textile and apparel firms must “stand out from the crowd”, by differentiating their products and moving up the value chain.

The present study has brought valuable insights on trends in textile and apparel as well as major top exporters economic trajectories. However, it can be supplemented and extended in various ways. The application of other methods, for instance econometric methods, may be relevant in order to overcome some limitations of the indicators used in this work. Furthermore other indicators to access upgrading such as patents, industrial design and brand may also bring new relevant perspectives of the textile and apparel sectors. Although this analysis already integrates a significant number of categories and countries, a complementary study could be made with a micro-level focus as a firm level investigation may be pertinent in order to explain some countries’ dynamics. Future research avenues may also include not only the elaboration of case studies through observation and direct interviews but also a similar study to other sectors and countries.

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ANNEX

Table A.1: Unit Values in textiles and apparel (HS categories 50-63, 2000)

2000	50	51	52	53	54	55	56	57	58	59	60	61	62	63	Textiles (50-59)	Apparel (60-63)
Belgium	64,7	5,7	4,8	1,8	4,3	3,6	4,7	3,8	11,9	8,5	7,8	20,9	25,7	2,9	113,8	57,2
China	28,9	13,5	4,2	7,7	7,1	4,8	2,4	7,7	7,3	2,6	3,4	21,2	28,4	6,7	86,2	59,7
Hong Kong	11,9	8,4	1,6	2,1	1,0	1,5	4,0	4,7	5,8	5,5	8,3	10,1	10,1	1,4	46,4	29,8
Denmark	16,2	10,1	8,9	7,9	6,6	9,4	3,5	16,5	20,2	11,4	8,4	51,0	30,9	6,2	110,5	96,4
France	87,8	6,0	7,0	1,9	5,0	7,0	4,1	2,9	25,3	8,3	10,4	35,5	45,0	3,8	155,5	94,7
Germany	36,3	10,1	6,5	8,7	5,8	3,3	4,3	6,0	15,6	9,2	11,9	32,2	46,6	2,3	105,7	93,0
India	39,0	8,0	3,1	0,6	3,0	2,5	1,7	8,0	5,1	2,7	3,8	16,1	19,0	4,8	73,8	43,7
Indonesia	10,0	5,6	3,4	0,4	3,4	2,4	5,1	3,2	16,0	4,6	6,2	13,2	19,4	4,4	54,1	43,2
Italy	102,8	16,2	7,6	15,7	6,3	6,2	3,7	3,2	16,4	7,7	12,9	32,4	49,0	3,7	185,8	98,0
Japan	111,8	29,7	13,7	13,4	10,8	2,9	12,7	4,4	29,1	21,2	18,3	41,7	61,9	1,4	249,5	123,4
Mexico	92,5	17,0	2,9	4,1	4,8	1,8	3,2	3,3	10,5	7,2	8,0	21,2	24,4	4,9	147,2	58,5
Netherlands	49,7	9,1	8,5	1,8	4,0	5,9	4,3	3,7	7,4	8,3	8,5	22,4	27,3	1,7	102,8	59,8
Poland	0,0	6,9	5,0	3,5	3,5	2,0	2,3	3,1	8,5	3,6	6,8	14,0	23,2	4,7	38,4	48,6
Portugal	29,9	8,7	5,9	2,0	4,8	4,1	1,7	5,6	12,6	3,6	5,8	18,5	30,1	7,3	78,9	61,5
Spain	27,9	5,2	3,8	4,9	5,5	3,5	3,2	16,9	8,0	5,2	10,0	49,6	37,1	5,9	84,1	102,6
Thailand	19,6	5,5	4,8	0,3	2,3	1,8	3,2	4,5	10,5	3,8	5,3	18,1	26,8	3,7	56,3	54,0
Turkey	9,5	8,0	3,0	8,4	2,4	3,6	2,7	4,1	7,2	4,5	5,4	14,7	16,5	4,5	53,5	41,0
UK	29,1	7,3	7,4	10,3	4,8	1,3	4,9	6,1	12,6	0,7	11,5	22,7	22,2	3,1	84,5	59,4
USA	20,1	6,9	2,0	3,6	6,2	2,8	4,7	3,7	5,9	7,6	6,8	9,4	10,9	2,3	63,5	29,4
Percentil33	20,10	6,93	3,78	2,00	4,01	2,54	3,19	3,69	7,97	4,45	6,72	18,01	23,11	3,07	73,2	53,7
Percentil 66	38,64	9,03	6,42	7,37	5,41	3,61	4,25	5,48	12,62	7,65	8,47	22,64	29,86	4,70	105,4	61,3

Source: Comtrade and author's own computation

Table A.2: Unit Values in textiles and apparel (HS categories 50-63, 2014)

2014	50	51	52	53	54	55	56	57	58	59	60	61	62	63	Textiles (50-59)	Apparel (60-63)
Belgium	115,7	4,6	5,6	1,9	5,4	3,7	6,9	4,7	11,4	10,9	8,1	34,4	45,1	4,0	170,8	91,5
China	82,0	20,7	11,1	16,2	5,8	4,9	3,8	4,2	10,5	191,4	9,8	33,8	49,2	7,7	350,7	100,6
Hong Kong	47,6	30,8	5,6	19,5	9,3	8,4	9,7	4,0	23,8	17,3	8,5	41,5	54,2	4,7	176,1	108,8
Denmark	18,4	17,6	13,0	7,9	5,9	4,3	4,5	8,9	22,7	14,3	11,9	39,6	48,2	7,2	117,4	106,9
France	298,7	4,8	9,4	1,9	7,6	9,9	5,7	5,7	45,4	12,5	15,5	44,6	77,1	4,5	401,7	141,7
Germany	84,2	14,2	9,3	8,8	9,4	6,9	6,4	8,6	20,1	15,6	17,1	37,0	51,8	4,1	183,6	109,9
India	57,2	12,3	3,0	0,5	3,0	3,3	3,5	7,9	9,2	6,4	4,3	25,1	47,8	5,5	106,4	82,7
Indonesia	10,0	5,6	3,4	0,4	3,4	2,4	5,1	3,2	16,0	4,6	6,2	13,2	19,4	4,4	54,1	43,2
Italy	143,0	31,3	16,2	21,4	10,0	10,6	5,4	7,0	30,5	11,3	18,6	66,7	121,5	4,4	286,7	211,2
Japan	131,5	44,6	17,8	23,7	13,4	5,3	10,6	4,6	35,0	26,8	21,2	115,2	158,3	0,9	313,2	295,6
Mexico	190,7	22,3	3,6	0,6	4,7	4,3	5,4	5,0	18,1	11,0	10,6	35,6	41,1	6,2	265,6	93,5
Netherlands	55,7	5,6	19,1	2,0	10,9	8,3	7,9	3,7	9,2	8,4	6,7	31,6	38,9	3,6	130,9	80,7
Pakistan	9,3	1,3	4,3	101,8	9,1	8,5	3,8	45,7	7,5	216,1	10,2	31,2	38,6	5,4	407,4	85,4
Poland	59,8	16,1	8,4	6,2	6,2	4,2	5,3	5,4	12,8	7,2	8,5	38,5	48,4	3,8	131,6	99,2
Portugal	68,1	8,9	7,4	9,5	6,6	5,1	3,5	11,7	18,1	6,9	7,4	28,7	41,0	9,7	145,7	86,7
Spain	100,9	4,7	5,5	5,2	8,6	10,9	4,3	0,9	16,4	9,3	11,8	21,5	43,3	8,0	166,7	84,6
Thailand	51,5	18,0	5,3	0,4	3,7	2,5	4,6	6,5	21,2	7,2	8,6	35,3	34,2	4,6	120,8	82,7
Turkey	19,3	6,7	5,1	4,8	5,8	5,8	3,1	3,6	11,4	5,5	7,1	22,7	27,0	7,2	71,1	64,0
UK	71,7	8,6	22,0	25,2	8,3	5,2	10,0	7,4	5,8	11,8	9,8	17,2	22,1	2,8	176,2	51,9
USA	8,0	6,5	2,4	3,7	7,1	4,8	6,5	5,6	9,4	12,5	9,5	17,2	24,9	2,1	66,5	53,8
Percentil33	52,7	6,6	5,3	2,4	5,8	4,5	4,5	4,6	11,4	8,6	8,5	29,3	39,4	4,2	131,1	83,2
Percentil 66	83,2	16,9	9,4	9,2	8,5	6,4	6,1	6,8	19,2	12,5	10,4	36,4	48,3	5,5	180,2	99,9

Source: Comtrade and author's own computation

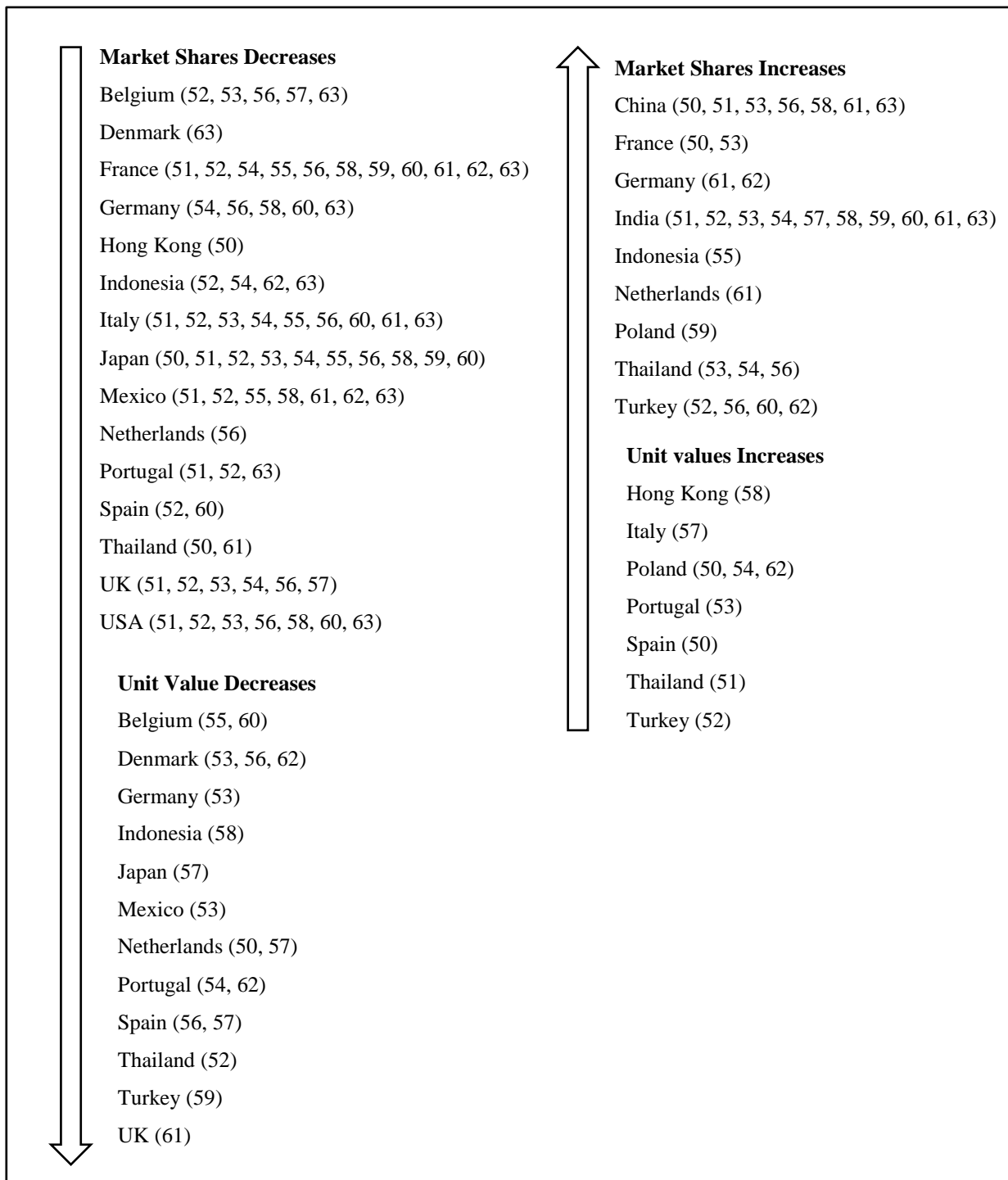


Figure A.3: Evolution of market shares and unit values

Source: Comtrade and author's own computation